

Site Investigation Findings Report

Tannery Sludge Farm Fields Site

Andrew, Buchanan, Clinton and DeKalb Counties, MO

Order Number: 100413005

Site Information:

ESP LDPR Code: FEPA8

ESP Staff: Ken Hannon, Sean Counihan, Brad Swank

Job Code: NJ10TSFF

HWP Staff: Michal Stroh, Shelly Jackson, Valerie Wilder

Investigation Date: 4/6 and 4/7, 2010

Introduction:

The Missouri Department of Natural Resources (MDNR) Hazardous Waste Program (HWP) requested Environmental Services Program (ESP) personnel to conduct sampling related to an ongoing investigation involving the Prime Tanning Corporation located at 205 Florence Road in St. Joseph, Missouri. This Findings Report is intended as an interim measure to document recent sampling activities. A full project report will be written by the HWP project manager when sample results have been received and evaluated. ESP Environmental Specialists Ken Hannon, Brad Swank and Sean Counihan traveled to the site on April 6 and 7, 2010, to collect grab samples of soils from selected residences and farm fields where tannery sludge was historically applied as a fertilizer. Additional MDNR personnel on site included Valerie Wilder, Michael Stroh and Shelly Jackson with the HWP, site assessment unit. Sampling was conducted in accordance with established standard operating procedures (SOPs) within the MDNR, ESP and as outlined in the Tannery Sludge Farm Field Sampling and Analysis Plan (SAP), January 14, 2010 and the Farm Fields and Residential Yards Sapling and Analysis Plan Addendum (SAP Addendum), April 5, 2010.

Observations:

Personnel arrived on-site the afternoon of April 6, 2010, and began sampling in selected agricultural fields and residential yards. Custody of all samples collected was maintained by HWP personnel. Weather conditions generally mild with temperatures ranging from morning lows of 35 degrees to afternoon highs around 70 degrees Fahrenheit. Winds were low to moderate and from the west to southwest, increasing towards the afternoons. Fifteen residential yard decision unit incremental samples (DUIS) (including four background yards), and five background farm field Duis were sampled during this event. In addition, incremental samples were collected from three 1-acre farm field sampling units in triplicate for quality control purposes. Sampling locations are shown in the map in Appendix A. No deviations from the SAP or the SAP Addendum were noted at any sample locations.

On April 7, 2010, Mr. Matt Sugar of ARCADIS Consulting met with DNR personnel and collected replicate samples at residential yard Location ID 312 and farm field Location ID 214.

Field Methods:

Below is a brief discussion of the sampling activities conducted. A more detailed description of sampling procedures is outlined in the SAP and SAP Addendum.

Ten-increment soil samples were collected from the 0-1 inch depth within three 1-acre sampling units at each of five background farm field decision units. At three previously-sampled target farm field decision units, triplicate sampling unit incremental samples (SUIS) samples were also collected for quality control (QC). One sample was split and processed as a blind field duplicate to assess precision. The samples were air dried, disaggregated and passed through a #60 mesh sieve. The background and QC SUIS samples were then analyzed for total chromium with an x-ray fluorescence (XRF) analyzer. The background SUIS samples were then combined to form DUIS samples, which were also analyzed by XRF. The background DUIS and QC SUIS were then placed into sample containers and submitted for analysis of hexavalent chromium on April 14, 2010. Some samples were also analyzed for the following parameters: pH, TOC, ORP, percent moisture, Cr, Fe, Mn, Mo, V, and Al. Two farm field samples were analyzed in duplicate by the laboratory to assess subsampling and analytical precision.

Residential yards were divided into Sampling Units (SU) according to each specific site location and recorded field forms (Appendix B). Fifteen to twenty soil increments were collected from a depth of 0-1 inch and combined in the field to create one DUIS for each resident yard sampled. All soil samples transported to the ESP lab and allowed to air dry at ambient temperatures for four days. The samples were then disaggregated and passed through a #60 mesh (0.25mm) sieve. The material passing through the sieve was placed into sample containers and submitted for analysis of the following parameters on April 14, 2010: pH, TOC, ORP, percent moisture, Cr, Cr⁺⁶, Fe, Mn, Mo, V, and Al. Two yard soil samples were analyzed in duplicate by the laboratory to assess subsampling and analytical precision. Aqueous matrix spikes were requested for Cr⁺⁶ on every yard sample to evaluate matrix effects. In addition, for select samples, solid matrix spikes were requested using a NIST standard reference material containing a known concentration of Cr⁺⁶.

Table 1 is a listing of the samples collected. Chains of custody are provided in Appendix B.

Table 1: Sample Collection Data

Sample Number	Date Collected	Time Collected	Location Collected & Description
1004716	4/6/10	0950	Farm field soil location 201, DUIS. (Background)
1004717	4/6/10	1518	Farm field soil location 251, DUIS. (Background)
1004718	4/6/10	1620	Farm field soil location 252, DUIS. (Background)
1004719	4/6/10	1617	Farm field soil location 253, DUIS. (Background)
1004720	4/6/10	1239	Farm field soil location 254, DUIS. (Background)
1004721	4/6/10	0941	Residential soil composite collected from Location 301, DUIS. (Background)
1004722	4/6/10	1430	Residential soil composite collected from Location 302, DUIS.
1004723	4/6/10	1227	Residential soil composite collected from Location 303, DUIS.
1004724	4/6/10	1255	Residential soil composite collected from Location 304, DUIS.
1004725	4/6/10	1316	Residential soil composite collected from Location 305, DUIS.
1004726	4/6/10	1306	Residential soil composite collected from Location 306, DUIS.

Table 1: Sample Collection Data

Sample Number	Date Collected	Time Collected	Location Collected & Description
1004727	4/7/10	0818	Residential soil composite collected from Location 312, DUIS.
1004728	4/6/10	1415	Residential soil composite collected from Location 313, DUIS.
1004729	4/6/10	1350	Residential soil composite collected from Location 319, DUIS.
1004730	4/6/10	1407	Residential soil composite collected from Location 320, DUIS.
1004731	4/6/10	1510	Residential soil composite collected from Location 325, DUIS.
1004732	4/6/10	1516	Residential soil composite collected from Location 326, DUIS.
1004733	4/6/10	1520	Residential soil composite collected from Location 352, DUIS. (Background)
1004734	4/6/10	1753	Residential soil composite collected from Location 353, DUIS. (Background)
1004735	4/6/10	1215	Residential soil composite collected from Location 354, DUIS. (Background)
1004736	4/6/10	1241	Farm field soil location 205, SU 88, replicate 1.
1004737	4/6/10	1245	Farm field soil location 205, SU 88, replicate 2.
1004738	4/6/10	1253	Farm field soil location 205, SU 88, replicate 3.
1004739	4/7/10	0835	Farm field soil location 214, SU 37, replicate 1.
1004740	4/7/10	0845	Farm field soil location 214, SU 37, replicate 2.
1004741	4/7/10	0855	Farm field soil location 214, SU 37, replicate 3.
1004742	4/6/10	1624	Farm field soil location 221, SU 161, replicate 1.
1004743	4/6/10	1632	Farm field soil location 221, SU 161, replicate 2.
1004744	4/6/10	1640	Farm field soil location 221, SU 161, replicate 3.
1004745	4/6/10	-----	Blind replicate of 1004744

Findings:

Full analytical results are provided in Appendix B. A summary of the results is provided in Tables 2 and 3 on the following page. A copy of field notes and photo log is provided in Appendix C.

None of the farm field or residential yard soil samples was found to contain concentrations of hexavalent chromium above the screening levels developed for the project. The data are currently undergoing data quality review and statistical uncertainty analysis. Results of this analysis will be provided in the full project report anticipated to be finalized in late summer 2010.

Table 2: Summary of Farm Field Sample Results

Tag Number	DU	SU		Date Collected	Cr 6 ⁺ , mg/kg	Total Cr, mg/kg (XRF)	ORP (mV)	TOC, %	pH	Fe, mg/kg	Mn, mg/kg	Mo, mg/kg	V, mg/kg	Al, mg/kg
1004739	214	37	Rep11	4/7/2010	1.13	264	413	5.8	7.89	30,000	417	2.05	38.5	16,000
1004740	214	37	Rep12	4/7/2010	0.715	289	NA	NA	NA	NA	NA	NA	NA	NA
1004741	214	37	Rep13	4/7/2010	0.674	267	NA	NA	NA	NA	NA	NA	NA	NA
1004736	205	88	Rep11	4/6/2010	1.110	105	467	3	6.57	27,000	575	1.11	38.2	15,100
1004736	205 Lab Dup	88	Rep11	4/6/2010	0.938	NA	NA	NA	NA	NA	NA	NA	NA	NA
1004737	205	88	Rep12	4/6/2010	0.652	149	NA	NA	NA	NA	NA	NA	NA	NA
1004738	205	88	Rep13	4/6/2010	0.779	159	NA	NA	NA	NA	NA	NA	NA	NA
1004742	221	162	Rep11	4/6/2010	3.45	97	425	2.1	7.58	20,300	383	0.461	47.2	17,300
1004743	221	162	Rep12	4/6/2010	4.57	115	NA	NA	NA	NA	NA	NA	NA	NA
1004744	221	162	Rep13	4/6/2010	4.38	105	NA	NA	NA	NA	NA	NA	NA	NA
1004745	221	162	Rep13 Blind Dup	4/6/2010	3.76	NA	NA	NA	NA	NA	NA	NA	NA	NA
1004716	201	0	Background Field	4/6/2010	0.060	33	442	3.1	6.52	15500	281	0.797	43.9	13200
1004716	201 Lab Dup	0	Background Field	4/6/2010	0.063	NA	NA	NA	NA	NA	NA	NA	NA	NA
1004717	251	0	Background Field	4/6/2010	0.178	29	460	6.03	6.03	14200	288	0.538	41.2	14800
1004718	252	0	Background Field	4/6/2010	0.132	32	546	6.31	6.31	18400	462	0.582	43.2	18200
1004719	253	0	Background Field	4/6/2010	0.083	30	470	6.47	6.47	15000	487	0.488	32.8	12700
1004720	254	0	Background Field	4/6/2010	0.039	26	482	6.19	6.19	14000	411	0.827	32.9	12100

Table 3: Summary of Residential Yard Sample Results

Tag Number	DU	SU	Date Collected	Cr 6+, mg/kg	TOC (%)	ORP	pH	Fe, mg/kg	Mn, mg/kg	Mo, mg/kg	V, mg/kg	Al, mg/kg
1004729	319	Yard	4/6/2010	0.073	3.1	444	7.25	20600	800	0.893	44.5	17600
1004725	305	Yard	4/6/2010	0.233	3.2	431	7.54	16100	705	0.779	34.5	13500
1004730	320	Yard	4/6/2010	0.325	1.4	443	7.14	21200	757	0.71	44.2	17800
1004730	320 Lab Dup	Yard	4/6/2010	0.312	NA	NA	NA	NA	NA	NA	NA	NA
1004731	325	Yard	4/6/2010	0.153	2.3	441	7.55	14100	374	0.549	27.7	8850
1004732	326	Yard	4/6/2010	0.086	1.4	451	7.54	13500	345	0.527	26.3	8420
1004727	312	Yard	4/6/2010	0.049	1.5	430	7.72	19000	687	1.04	40.1	15900
1004728	313	Yard	4/6/2010	0.148	2.3	435	7.25	13500	559	0.578	35.3	14800
1004724	304	Yard	4/6/2010	0.290	5.2	416	7.78	16700	549	0.631	38.3	14600
1004723	303	Yard	4/6/2010	0.02(J)	3.7	433	7.15	13900	224	0.495	35.9	17400
1004723	303 Lab Dup	Yard	4/6/2010	0.022 (J)	NA	NA	NA	NA	NA	NA	NA	NA
1004726	306	Yard	4/6/2010	0.096	2	436	7.47	17600	768	0.49	33.5	13300
1004722	302	Yard	4/6/2010	0.110	2.4	464	6.49	16300	535	0.552	38.3	15700
		Background Yard										
1004721	301	Background Yard	4/6/2010	0.053	3.9	454	7.03	15200	510	0.627	37.7	15900
1004733	352	Background Yard	4/6/2010	0.034	3.4	450	7.41	17400	607	0.785	33.5	13900
1004734	353	Background Yard	4/6/2010	0.050	2.2	442	7.90	15400	636	0.938	22.2	9260
1004735	354	Background Yard	4/6/2010	0.095	2.2	440	7.00	16400	384	0.552	36.8	16300

Submitted by:

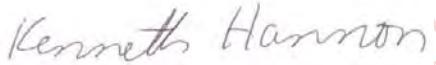


6/30/10

Michael Stroh
Environmental Specialist
Superfund Section
Hazardous Waste Program

(Date)

Reviewed by:



Digitally signed by Ken Hannon
DN: cn=Ken Hannon, c=US, o=Field Services
Section - EER, ou=Department of Natural
Resources, email=ken.hannon@dnr.mo.gov
Reason: I am the author of this document
Date: 2010.07.16 14:12:28 -05'00'

Ken Hannon
Environmental Specialist
Field Services Unit
Environmental Services Program



Digitally signed by Eric Sappington
DN: cn=Eric Sappington, c=US,
o=Environmental Services Program,
ou=Department of Natural Resources,
email=eric.sappington@dnr.mo.gov
Date: 2010.07.16 14:22:10 -05'00'

Approved by:

Eric Sappington
Unit Chief
Field Services Unit
Environmental Services Program

APPENDIX A

Site Map

Tannery Sludge Farm Fields Site
Andrew, Buchanan, Clinton and DeKalb Counties, MO

Tannery Sludge Farm Fields Site
 Sampling Locations for
 April 2010 Sampling Event
 Andrew, Buchanan, Clinton and
 Dekalb Counties
 Northwest Missouri

Legend

- Residential Soil Sample
- Residential Soil Sample - Background
- Field Soil Sample
- Field Soil Sample - Background
- Missouri River
- County Boundary

Federal Roads

- Interstate Highway
- US Highway
- Municipality Boundary



Map Created on June 25, 2010 by Shelly Jackson.

This map can be found at M:\Superfund\Tannery Sludge Farm Fields\Maps\2010April_SamplingMap.mxd

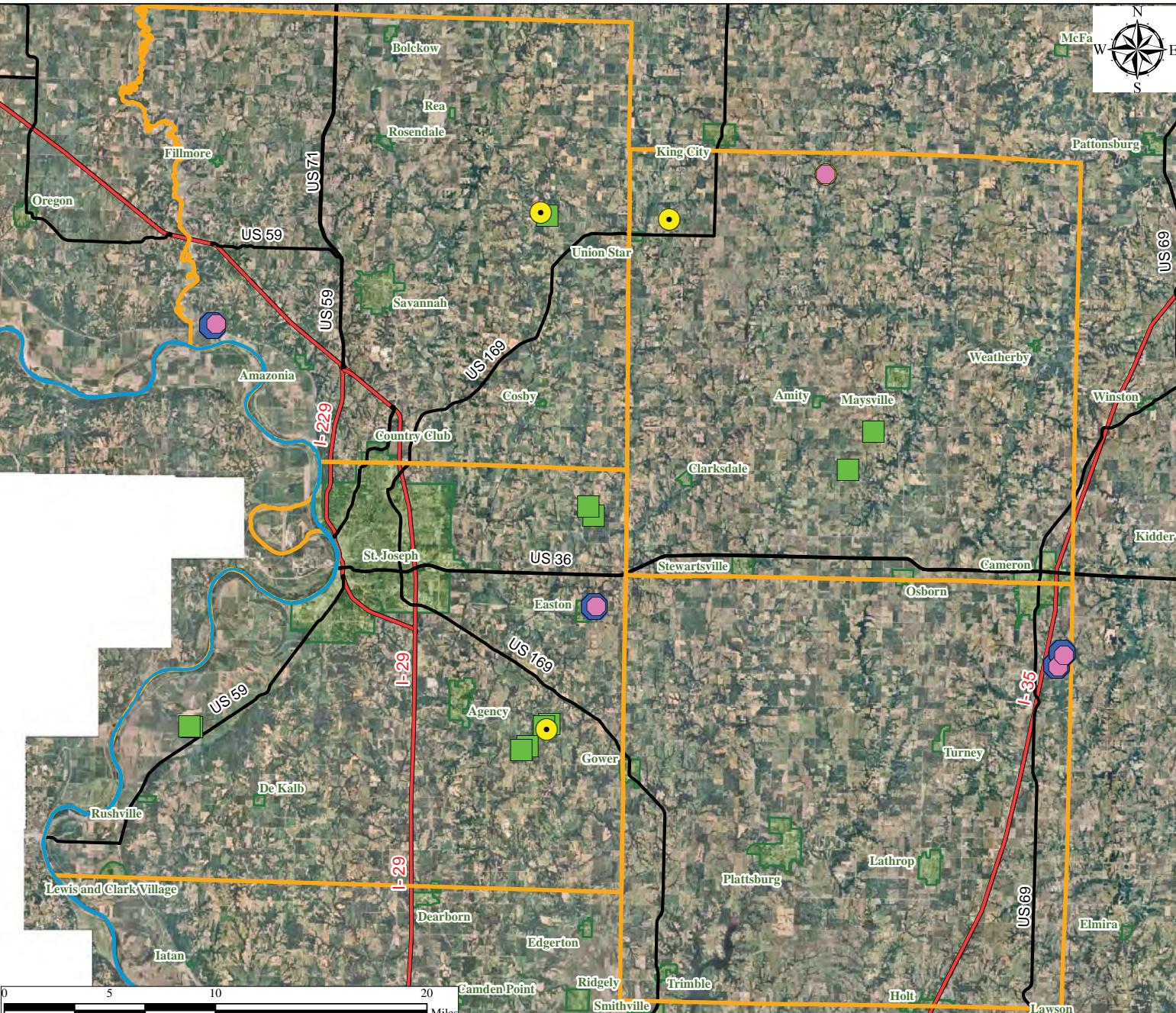
Base Map: National Agricultural Imagey Program. Flight Date: 2007.

Although data sets used to create this map have been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.



**Missouri Department of
 Natural Resources**

Division of Environmental Quality
 Hazardous Waste Program



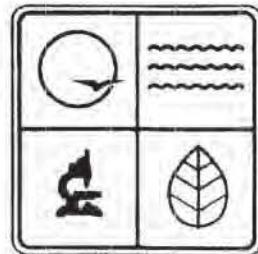
APPENDIX B

Chain of Custody/Analytical Results

Tannery Sludge Farm Fields Site
Andrew, Buchanan, Clinton and DeKalb Counties, MO



Missouri Department of Natural Resources
Environmental Services Program



Order ID: 100413005 Program, Contact: HWP Julieann Warren
Report Date: 05/26/2010 LDPR/JobCode: FEPA8 / NJ10TSFF



Sample: AB18511



Customer #: 1004716

Facility ID: Site: Tannery Sludge Farm Fields
County: Multiple Sample Reference ID: 201

Collector: KEN HANNON

Affiliation: ESP

Collect Date: 4/6/2010 9:50:00AM

Entry Point:

Sample Comment: FF DUIS

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	13200000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	19600		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	15500000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	281000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	797		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	43900		µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.060	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	442	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	4.4	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	4.65		%	4,724	Infrared Drying
pH	pH	6.52	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	3.1	04		5,060	Contract Lab Dep

Sample: AB18512



Customer #: 1004717

Facility ID: Site: Tannery Sludge Farm Fields
County: Multiple Sample Reference ID: 251

Collector: KEN HANNON

Affiliation: ESP

Collect Date: 4/6/2010 3:18:00PM

Entry Point:

Sample Comment: FF DUIS

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	14800000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	18800		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	14200000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	288000		µg/kg	5,248	SW 846 6010B

Sample: AB18512



Customer #: 1004717

Facility ID:
County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: FF DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 251

Affiliation: ESP

Collect Date: 4/6/2010 3:18:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Molybdenum	538		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	41200		µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.18	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	460	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	3.8	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	3.32		%	4,724	Infrared Drying
pH	pH	6.03	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	1.2	04		5,060	Contract Lab Dep

Sample: AB18513



Customer #: 1004718

Facility ID:
County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: FF DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 252

Affiliation: ESP

Collect Date: 4/6/2010 4:20:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	18200000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	21500		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	18400000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	462000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	582		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	43200		µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.13	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	456	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	4.3	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	4.34		%	4,724	Infrared Drying
pH	pH	6.31	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	2.3	04		5,060	Contract Lab Dep

Sample: AB18514

Customer #: 1004719

Facility ID:

County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: FF DUIS

Site: Tannery Sludge Farm Fields

Sample Reference ID: 253

Affiliation: ESP

Collect Date: 4/6/2010 4:17:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	12700000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	16600		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	15000000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	487000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	488	05	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	32800		µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.083	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	470	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	6.4	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	6.23		%	4,724	Infrared Drying
pH	pH	6.47	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	2.1	04		5,060	Contract Lab Dep

Sample: AB18515

Customer #: 1004720

Facility ID:

County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: FF DUIS

Site: Tannery Sludge Farm Fields

Sample Reference ID: 254

Affiliation: ESP

Collect Date: 4/6/2010 12:39:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	12100000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	17300	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	14000000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	411000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	827		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	32900	09	µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.039	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	482	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	6.7	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	4.77		%	4,724	Infrared Drying
pH	pH	6.19	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	3.7	04		5,060	Contract Lab Dep

Sample: AB18516**Customer #: 1004721****Facility ID:
County: Multiple****Collector: KEN HANNON****Entry Point:****Sample Comment: YARD DUIS****Site: Tannery Sludge Farm Fields
Sample Reference ID: 301****Collect Date: 4/6/2010 9:41:00AM**

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	15900000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	18900		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	15200000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	510000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	627		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	37700		µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.053	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	454	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	7.6	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	7.52		%	4,724	Infrared Drying
pH	pH	7.03	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	3.9	04		5,060	Contract Lab Dep

Sample: AB18517**Customer #: 1004722****Facility ID:
County: Multiple****Collector: KEN HANNON****Entry Point:****Sample Comment: YARD DUIS****Site: Tannery Sludge Farm Fields
Sample Reference ID: 302****Collect Date: 4/6/2010 2:30:00PM**

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	15700000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	20000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	16300000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	535000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	552		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	38400		µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.11	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	464	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	7.1	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	7.29		%	4,724	Infrared Drying
pH	pH	6.49	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	2.4	04		5,060	Contract Lab Dep

Sample: AB18518

Customer #: 1004723

Facility ID:
County: Multiple
Collector: KEN HANNON
Entry Point:
Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 303
Affiliation: ESP

Collect Date: 4/6/2010 12:27:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	17400000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	18300		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	13900000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	224000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	495	05	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	35900		µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.020	04,05	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	433	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	4.1	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	3.92		%	4,724	Infrared Drying
pH	pH	7.15	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	3.7	04		5,060	Contract Lab Dep

Sample: AB18519

Customer #: 1004724

Facility ID:
County: Multiple
Collector: KEN HANNON
Entry Point:
Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 304

Collect Date: 4/6/2010 12:55:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	14600000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	19700		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	16700000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	549000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	631		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	38300		µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.029	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	416	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	4.2	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	4.15		%	4,724	Infrared Drying
pH	pH	7.78	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	5.2	04		5,060	Contract Lab Dep

Sample: AB18520



Customer #: 1004725

Facility ID:
County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 305

Collect Date: 4/6/2010 11:16:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	13500000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	19000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Iron	16100000	09	µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	705000		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	779		µg/kg	5,248	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	34500		µg/kg	5,248	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.23	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	431	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	7.6	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	7.59		%	4,724	Infrared Drying
pH	pH	7.54	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	3.2	04		5,060	Contract Lab Dep

Sample: AB18521



Customer #: 1004726

Facility ID:
County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 306

Collect Date: 4/6/2010 1:06:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	13300000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	17100		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	17600000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	768000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	490	05	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	33500		µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.096	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	436	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	7.0	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	6.99		%	4,724	Infrared Drying
pH	pH	7.47	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	2.0	04		5,060	Contract Lab Dep

Sample: AB18522

Customer #: 1004727

Facility ID:
County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 312

Affiliation: ESP

Collect Date: 4/7/2010 8:18:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	15900000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	30000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	19000000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	687000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	1040		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	40100		µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.049	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	430	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	2.2	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	2.48		%	4,724	Infrared Drying
pH	pH	7.72	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	1.8	04		5,060	Contract Lab Dep

Sample: AB18523

Customer #: 1004728

Facility ID:
County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 313

Affiliation: ESP

Collect Date: 4/6/2010 2:15:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	14800000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	23100		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	15300000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	559000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	578		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	35300		µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.15	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	435	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	6.5	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	6.27		%	4,724	Infrared Drying
pH	pH	7.25	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	2.3	04		5,060	Contract Lab Dep

Sample: AB18524**Customer #: 1004729****Facility ID:
County: Multiple****Collector: KEN HANNON****Entry Point:****Sample Comment: YARD DUIS****Site: Tannery Sludge Farm Fields
Sample Reference ID: 319****Collect Date: 4/6/2010 1:50:00PM**

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	17600000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	22500		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	20600000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	800000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	893		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	44500		µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.073	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	444	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	11.9	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	11.65		%	4,724	Infrared Drying
pH	pH	7.25	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	3.1	04		5,060	Contract Lab Dep

Sample: AB18525**Customer #: 1004730****Facility ID:
County: Multiple****Collector: KEN HANNON****Entry Point:****Sample Comment: YARD DUIS****Site: Tannery Sludge Farm Fields
Sample Reference ID: 320****Collect Date: 4/6/2010 2:07:00PM**

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	17800000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	25800		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	21200000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	757000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	710		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	44200		µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.32	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	443	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	6.1	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	6.31		%	4,724	Infrared Drying
pH	pH	7.14	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	1.4	04		5,060	Contract Lab Dep

Sample: AB18526

Customer #: 1004731

Facility ID:

County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields

Sample Reference ID: 325

Affiliation: ESP

Collect Date: 4/6/2010 3:10:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	8850000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	22600		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	14100000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	374000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	549		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	27700		µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.15	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	441	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	6.5	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	6.88		%	4,724	Infrared Drying
pH	pH	7.55	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	2.3	04		5,060	Contract Lab Dep

Sample: AB18527

Customer #: 1004732

Facility ID:

County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields

Sample Reference ID: 326

Affiliation: ESP

Collect Date: 4/6/2010 3:16:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	8420000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	15700		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	13500000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	345000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	527		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	26300		µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.086	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	451	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	5.0	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	4.84		%	4,724	Infrared Drying
pH	pH	7.54	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	1.4	04		5,060	Contract Lab Dep

Sample: AB18528



Customer #: 1004733

Facility ID:
County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 352

Collect Date: 4/6/2010 3:20:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	13900000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	17900	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	17400000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	607000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	785		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	33500	09	µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.034	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	450	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	2.8	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	3.13		%	4,724	Infrared Drying
pH	pH	7.41	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	3.4	04		5,060	Contract Lab Dep

Sample: AB18529



Customer #: 1004734

Facility ID:
County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields
Sample Reference ID: 353

Collect Date: 4/6/2010 5:53:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	9260000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	16800		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	15400000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	636000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	938		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	22200	09	µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.050	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	442	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	2.4	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	2.92		%	4,724	Infrared Drying
pH	pH	7.90	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	2.2	04		5,060	Contract Lab Dep

Sample: AB18530

Customer #: 1004735

Facility ID:

County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: YARD DUIS

Site: Tannery Sludge Farm Fields

Sample Reference ID: 354

Affiliation: ESP

Collect Date: 4/6/2010 12:15:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	16300000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	21200		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Iron	16400000	09	µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	384000		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	552		µg/kg	5,249	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	36800	09	µg/kg	5,249	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	0.095	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	440	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	6.8	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	6.74		%	4,724	Infrared Drying
pH	pH	7.00	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	2.2	04		5,060	Contract Lab Dep

Sample: AB18531

Customer #: 1004736

Facility ID:

County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: SU 88 repl 1

Site: Tannery Sludge Farm Fields

Sample Reference ID: 205

Affiliation: ESP

Collect Date: 4/6/2010 12:41:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	15100000	09	µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	145000		µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Iron	27000000	09	µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	575000		µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	1110		µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	38200		µg/kg	5,250	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	1.11	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	467	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	7.5	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	7.90		%	4,724	Infrared Drying
pH	pH	6.57	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	3.0	04		5,060	Contract Lab Dep

Sample: AB18532



Customer #: 1004737

Facility ID:
County: Multiple
Collector: KEN HANNON
Entry Point:
Sample Comment: SU 88 repl 2

Site: Tannery Sludge Farm Fields
Sample Reference ID: 205

Affiliation: ESP

Collect Date: 4/6/2010 12:45:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	0.65	04	mg/Kg	5,054	Contract Lab Dep
Percent Moisture	Percent Moisture	6.5	04	%	5,055	Contract Lab Dep

Sample: AB18533



Customer #: 1004738

Facility ID:
County: Multiple
Collector: KEN HANNON
Entry Point:
Sample Comment: SU 88 repl 3

Site: Tannery Sludge Farm Fields
Sample Reference ID: 205

Affiliation: ESP

Collect Date: 4/6/2010 12:52:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	0.78	04	mg/Kg	5,054	Contract Lab Dep
Percent Moisture	Percent Moisture	7.0	04	%	5,055	Contract Lab Dep

Sample: AB18534



Customer #: 1004739

Facility ID:
County: Multiple
Collector: KEN HANNON
Entry Point:
Sample Comment: SU 37 repl 1

Site: Tannery Sludge Farm Fields
Sample Reference ID: 214

Affiliation: ESP

Collect Date: 4/7/2010 8:35:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	16000000	09	µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	377000		µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Iron	30000000	09	µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	417000		µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	2050		µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	39500		µg/kg	5,250	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	1.13	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	413	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	3.8	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	4.24		%	4,724	Infrared Drying
pH	pH	7.89	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	5.8	04		5,060	Contract Lab Dep

Sample: AB18535



Customer #: 1004740

Facility ID:
County: Multiple
Collector: KEN HANNON
Entry Point:
Sample Comment: SU 37 repl 2

Site: Tannery Sludge Farm Fields
Sample Reference ID: 214

Affiliation: ESP

Collect Date: 4/7/2010 8:45:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	0.72	04	mg/Kg	5,054	Contract Lab Dep
Percent Moisture	Percent Moisture	9.2	04	%	5,055	Contract Lab Dep

Sample: AB18536



Customer #: 1004741

Facility ID:
County: Multiple
Collector: KEN HANNON
Entry Point:
Sample Comment: SU 37 repl 3

Site: Tannery Sludge Farm Fields
Sample Reference ID: 214

Affiliation: ESP

Collect Date: 4/7/2010 8:55:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	0.67	04	mg/Kg	5,054	Contract Lab Dep
Percent Moisture	Percent Moisture	3.9	04	%	5,055	Contract Lab Dep

Sample: AB18537



Customer #: 1004742

Facility ID:
County: Multiple
Collector: KEN HANNON
Entry Point:
Sample Comment: SU 161 repl 1

Site: Tannery Sludge Farm Fields
Sample Reference ID: 221

Affiliation: ESP

Collect Date: 4/6/2010 4:24:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
6010B Metals-Total Recoverable	Aluminum	17300000	09	µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Chromium	132000		µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Iron	20300000	09	µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Manganese	383000		µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Molybdenum	461	05	µg/kg	5,250	SW 846 6010B
6010B Metals-Total Recoverable	Vanadium	47200		µg/kg	5,250	SW 846 6010B
Hexavalent Chromium	Hexavalent Chromium	3.45	04	mg/Kg	5,054	Contract Lab Dep
Oxidation Reduction Potential	Oxidation Reduction Potential	425	04	mV	5,061	Contract Lab Dep
Percent Moisture	Percent Moisture	2.9	04	%	5,055	Contract Lab Dep
Percent Moisture	Percent Moisture	2.59		%	4,724	Infrared Drying
pH	pH	7.58	04	pH Units	5,062	Contract Lab Dep
Total Organic Carbon	Total Organic Carbon	2.1	04		5,060	Contract Lab Dep

Sample: AB18538



Customer #: 1004743

Facility ID:

County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: SU 161 repl 2

Site: Tannery Sludge Farm Fields

Sample Reference ID: 221

Affiliation: ESP

Collect Date: 4/6/2010 4:32:00PM

Test

Parameter

Result

Qualifier

Units

QC Batch ID

Method

Hexavalent Chromium

Hexavalent Chromium

4.57

04

mg/Kg

5,054

Contract Lab Dep

Percent Moisture

Percent Moisture

3.8

04

%

5,055

Contract Lab Dep

Sample: AB18539



Customer #: 1004744

Facility ID:

County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: SU 161 repl 3

Site: Tannery Sludge Farm Fields

Sample Reference ID: 221

Collect Date: 4/6/2010 4:40:00PM

Test

Parameter

Result

Qualifier

Units

QC Batch ID

Method

Hexavalent Chromium

Hexavalent Chromium

4.38

04

mg/Kg

5,054

Contract Lab Dep

Percent Moisture

Percent Moisture

7.1

04

%

5,055

Contract Lab Dep

Sample: AB18540



Customer #: 1004745

Facility ID:

County: Multiple

Collector: KEN HANNON

Entry Point:

Sample Comment: BLIND REPLICATE

Site: Tannery Sludge Farm Fields

Sample Reference ID:

Collect Date: 4/6/2010 12:00:00AM

Test

Parameter

Result

Qualifier

Units

QC Batch ID

Method

Hexavalent Chromium

Hexavalent Chromium

3.76

04

mg/Kg

5,054

Contract Lab Dep

Percent Moisture

Percent Moisture

7.1

04

%

5,055

Contract Lab Dep

Chris Boldt

Chris Boldt, Laboratory Manager
Environmental Services Program
Field Services Division

Qualifier Descriptions

- 01 Improper collection method
- 03 Exceeded holding time
- 05 Estimated value, detected below PQL
- 07 Estimated value, analyte outside calibration range
- 09 Sample was diluted during analysis
- 11 Estimated value, matrix interference
- 13 Estimated value, true result is \geq reported value
- 15 No Result - Failed Quality Controls Requirements
- 17 Results in dry weight
- 19 Estimated value
- 21 No result - spectral interference
- 23 Contract Lab specific qualifier - see sample comments
- ND Not detected at reported value

- 02 Improper preservation
- 04 Analyzed by Contract Laboratory
- 06 Estimated value, QC data outside limits
- 08 Analyte present in blank at $> 1/2$ reported value
- 10 Laboratory error
- 12 Insufficient quantity
- 14 Estimated value, non-homogeneous sample
- 16 Not analyzed - related analyte not detected
- 18 Sample pH is outside the acceptable range
- 20 Not analyzed - Instrument failure
- 22 pH was performed at the Laboratory
- 24 No result - matrix interference



**APPLIED SPECIATION
AND CONSULTING, LLC**

18804 Northcreek Parkway Bothell, WA, 98011
Tel: (425) 483-3300 Fax: (425) 483-9818
www.appliedspeciation.com

May 11, 2010

Michael Stroh
Missouri Department of Natural Resources / Hazardous Waste Program
P.O. Box 176
Jefferson City, MO 65102
(573) 522-9902

Dear Mr. Stroh,

Attached is the report associated with thirty (30) soil samples submitted for hexavalent chromium quantitation and conventionals (TOC, percent moisture, pH, and ORP) analyses on April 14, 2010. The samples were received on April 15, 2010 in sealed containers at -4°C. The submitted samples were extracted using EPA Method 3060A and then analyzed for hexavalent chromium via ion chromatography inductively coupled plasma dynamic reaction cell mass spectrometry (IC-ICP-DRC-MS). All conventionals analyses were performed using established methods as described in this report. Any analytical issues associated with the analysis are addressed in the following report.

If you have any questions, please feel free to contact me at your convenience.

Sincerely,

A handwritten signature in black ink that reads "Ben Wozniak".

Ben Wozniak
Project Manager
Applied Speciation and Consulting, LLC

Applied Speciation and Consulting, LLC

Report Prepared for:

Michael Stroh

Missouri Department of Natural Resources / Hazardous Waste Program
P.O. Box 176
Jefferson City, MO 65102

May 11, 2010

1. Sample Reception

Thirty (30) soil samples were submitted in wide-mouth glass jars (not provided by Applied Speciation and Consulting) for hexavalent chromium quantitation and conventionals (TOC, percent moisture, pH, and ORP) analyses on April 14, 2010. The samples were received in acceptable condition on April 15, 2010 in sealed containers at -4°C.

All samples were received in a laminar flow clean hood void of trace metals contamination and ultra-violet radiation. Upon reception, all samples were designated discrete sample identifiers and then stored in a secure, monitored refrigerator (maintained at a temperature of $\leq 4^{\circ}\text{C}$) until all preparatory and analytical procedures could be performed. Splits of each sample requesting TOC analysis were distributed to Amtest Inc.

2. Sample Preparation

All sample preparation is performed in laminar flow clean hoods known to be free from trace metals contamination. All applied water for dilutions and sample preservatives are monitored for contamination to account for any biases associated with the sample results.

Hexavalent Chromium Quantification by IC-ICP-DRC-MS Prior to analysis, all samples were extracted using EPA Method 3060A on either April 19th (Batch C4), April 20th (Batches C2 and C3), or April 23rd (Batch C1). In summary, each sample was first spread into a thin layer onto a clean surface and a known mass of each sample was then weighed into a polypropylene centrifuge tube by taking approximately fifteen random subsamples of the original sample. A buffered alkaline extraction solution, MgCl₂, and a phosphate buffer solution were then applied to each sample. All vials were then heated at 90-95°C in a sonicating bath for a minimum of one (1) hour. The resulting extracts were cooled, filtered, and injected directly into sealed autosampler vials prior to analysis for hexavalent chromium.

pH and ORP Analyses Prior to the analyses, all samples submitted for pH and ORP measurements were prepared in accordance with EPA Method 9045D on April 21, 2010. In summary, a known mass of each sample was placed into a polypropylene centrifuge tube and an equivalent mass of reagent water was also added. The resulting suspensions were shaken for five (5) minutes, after which each was briefly centrifuged and then decanted into a new centrifuge vial. Each sample extract was then analyzed for pH and ORP as described herein.

3. Sample Analysis

All sample analysis is preceded by a minimum of a five-point calibration curve spanning the entire concentration range of interest. Calibration curves are performed at the beginning of each analytical day. All calibration curves, associated with each species of interest, are standardized by linear regression resulting in a response factor. All sample results are **instrument blank corrected** to account for any operational biases associated with the analytical platform. All hexavalent chromium sample results have also been **dry-weight corrected** using the measured total solids (percent moisture) values.

Prior to sample analysis, all calibration curves are verified using second source standards which are identified as initial calibration verification standards (ICV).

Ongoing instrument performance is identified by the analysis of continuing calibration verification standards (CCV) and continuing calibration blanks (CCB) at a minimal interval of every ten analytical runs.

Hexavalent Chromium Quantitation by IC-ICP-DRC-MS All sample extracts for hexavalent chromium quantitation were analyzed via a modified version of EPA Method 7199 employing ion chromatography inductively coupled plasma dynamic reaction cell mass spectrometry (IC-ICP-DRC-MS). Aliquots of each sample are injected onto an anion exchange column and mobilized by an alkaline (pH > 7) gradient. The eluting chromium species are then introduced into a radio frequency (RF) plasma where energy-transfer processes cause desolvation, atomization, and ionization. The ions are extracted from the plasma through a differentially-pumped vacuum interface and travel through a pressurized chamber (DRC) containing a specific reactive gas which preferentially reacts with interfering ions of the same target mass to charge (m/z) ratios. A solid-state detector detects ions transmitted through the mass analyzer, on the basis of their mass-to-charge ratio (m/z), and the resulting current is processed by a data handling system.

The retention time for hexavalent chromium is compared to known standards for species identification.

Total Solids (Percent Moisture) Analysis Approximately 1-2 grams of each sample was placed into a pre-weighed pan, and the combined mass of the sample and pan was recorded. All samples were then placed into a convection oven maintained at a temperature of 65-70°C. After drying for a minimum of eight (8) hours, all samples

were briefly cooled and reweighed. The total solids percentage of each sample was calculated by dividing the weight of the dried sample by the weight of the original sample. All samples were prepared for total solids on April 22, 2010.

pH Analysis All sample extracts for pH measurement were analyzed in accordance with EPA Method 9045D on April 21, 2010.

ORP Analysis All sample extracts for ORP measurement were analyzed in accordance with ASTM D 1498-93 on April 21, 2010. All measured ORP values were corrected for the reference electrode in accordance with the guidance provided in EPA Method 3060A.

TOC Analysis All samples submitted for TOC measurements were analyzed via EPA Method 9060 on May 4, 2010.

4. Analytical Issues

Although the overall analyses went well, significant issues were encountered during the applied hexavalent chromium extraction procedure, as described below:

Hexavalent Chromium Quantitation – LCS/CRM Three laboratory control samples (LCS) and one certified reference material (CRM) were extracted with each batch of samples to identify the extraction efficiency and capacity of the extraction procedure to induce conversion of trivalent chromium to hexavalent chromium. The laboratory control samples spiked with an aqueous hexavalent chromium and a solid $PbCrO_4$ standard produced acceptable recoveries for each batch (ranging from 77.8% to 98.0%), indicating that the applied method effectively extracts and stabilizes the hexavalent chromium species. Similarly, the results obtained for the NIST 2701 CRM extracted with each batch of samples were in close agreement with the informational value provided for Method 7199 in Table A2 of the certificate of analysis (recoveries ranging from 96.1% to 117.4%), suggesting acceptable method performance.

The laboratory control sample spiked with an aqueous trivalent chromium standard solution resulted in a hexavalent chromium recovery of less than 1% for each of the sample batches. The quantity of hexavalent chromium detected in these trivalent chromium laboratory control samples is near that present in the associated preparation blanks, which is attributed to trace levels of hexavalent chromium in the reagents used for the extraction procedure. The low recoveries for the trivalent chromium spikes demonstrate that the extraction procedure, under ideal conditions, induces minimal conversion of trivalent to hexavalent chromium.

Hexavalent Chromium Quantitation – Matrix Spike / Matrix Spike Duplicates (MS/MSDs) Similar to the laboratory control samples, three discrete sets of matrix spikes were extracted with each batch to identify the interaction of the sample matrix with trivalent and hexavalent chromium. The client also requested solid matrix

spikes be performed on specific samples using the NIST 2701 CRM. The performance of the matrix spikes can assist in identifying chemical interferences associated with the sample matrix and the applied extraction procedure.

Hexavalent Chromium Quantitation – Cr(III) Matrix Spikes The hexavalent chromium recoveries associated with each aqueous trivalent chromium MS and MSD performed for Batches C1 and C2 were less than 2%. These low trivalent chromium matrix spike recoveries confirm that the extraction procedure induces minimal oxidation of trivalent chromium to hexavalent chromium in the spiked sample matrices.

For Batch C3 the recoveries of the trivalent chromium MS/MSD were slightly elevated at 7.5% and 4.2% respectively. These recoveries suggest that partial oxidation of trivalent chromium to hexavalent chromium may have occurred in this spiked sample matrix during the extraction despite the application of the buffered $MgCl_2$ solution to all extracts.

The recoveries of the trivalent chromium MS/MSD performed for Batch C4 were 3.9 and -4.7%, respectively. The fact that the concentrations of hexavalent chromium detected in the trivalent chromium MS and MSD (1.234 and 0.782mg/kg, respectively) were near the ambient sample concentration (1.025mg/kg average for the MD set performed on 1004736) must be carefully considered when applying these results.

The RPDs associated with the MSDs performed for batches C3 and C4 were above the established control limit of 25% (56.6% and 2064% respectively). These elevated RPDs are attributable to the fact that a minimal amount of the trivalent chromium spikes was converted to hexavalent chromium during the applied extraction procedure, resulting in hexavalent chromium concentrations that represented an increase in Cr(VI) less than twice the ambient sample concentration. Since greater variability is expected as spike concentrations approach the ambient sample concentrations, the elevated RPDs are identified as an inherent limitation of any quantitative method and do not impact the validity of the reported results.

Hexavalent Chromium Quantitation – Aqueous Cr(VI), Solid $PbCrO_4$, and NIST 2701 Matrix Spikes To assist in the interpretation of the data, the client requested that an aqueous Cr(VI) matrix spike be performed for most of the submitted samples. The recoveries associated with these aqueous Cr(VI) spikes were below the established control limit of 75% for the samples identified as 1004716-1004729, 1004731-1004736, and 1004739. The insoluble $PbCrO_4$ matrix spikes performed on 1004716 and the NIST 2701 spikes performed on 1004729 and 1004739 recovered below 75% as well. As previously mentioned, the recoveries of the aqueous Cr(VI) LCS, the $PbCrO_4$ LCS, and the NIST 2701 CRM were within control for all batches of samples, demonstrating that the applied procedure both extracts and stabilizes Cr(VI) in solution. Since the low bias observed for these soluble and insoluble Cr(VI) matrix spikes may therefore be attributed to interference from the spiked sample matrices, no

further corrective action was deemed necessary. These MS/MSD results suggest that the spiked sample matrices favor reduction of hexavalent chromium. The measured TOC and/or pH and ORP values obtained for these samples also suggest they are reducing in nature.

The hexavalent chromium recoveries associated with the aqueous Cr(VI) and the solid PbCrO₄ matrix spikes performed on the sample identified as 1004730 were within established control limits, as were those of the aqueous Cr(VI) and solid NIST 2701 matrix spikes performed on 1004742. These acceptable recoveries suggest that the applied method effectively extracts and stabilizes hexavalent chromium in these particular sample matrices.

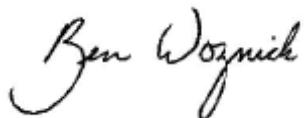
The RPD associated with the aqueous Cr(VI) MS/MSD set performed on the sample identified as 1004723 in Batch C2 was above the established control limit of 25% (65.4%). The RPD associated with the solid PbCrO₄ matrix spikes performed on this sample was within acceptance limits (3.4%), as was the RSD (5.7%) of the NIST 2701 triplicate matrix spike set performed on sample 1004729 in this same batch. Since this additional RPD and RSD were acceptable, the elevated RPD obtained for the aqueous Cr(VI) MS/MSD is deemed to be an isolated occurrence which reflects the variability of the reducing capacity of sample 1004723.

The RPD associated with the aqueous Cr(VI) MS/MSD set performed on the sample identified as 1004736 in Batch C4 was above the established control limit of 25% (182.9%). This sample matrix exhibited reducing conditions, as previously mentioned, which resulted in Cr(VI) concentrations for the MS and MSD that were less than twice the ambient sample concentration. Since greater variability is expected as spike concentrations approach the ambient sample concentration, the elevated RPD is identified as an inherent limitation of any quantitative method and does not impact the validity of the reported results. The acceptable RPD obtained for solid PbCrO₄ matrix spike performed on 1004736 instead demonstrates the precision of the extraction and analysis.

The estimated method detection limit (eMDL) for hexavalent chromium for each batch of solids is generated using the standard deviation of the associated preparation blanks, in accordance with Applied Speciation and Consulting's SOP.

If you have any questions or concerns regarding this report, please feel free to contact me.

Sincerely,



Ben Wozniak
Project Manager
Applied Speciation and Consulting, LLC

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Sample Results

Sample ID	Batch Identifiers	Date & Time Analyzed for Cr(VI)*	Cr(VI) in mg/kg (dw)	% Solids	TOC in %	ORP (mV)**	pH
1004716	S1, C1, T1	4/23/2010 21:00	0.060	95.6	3.1	442	6.52
1004717	S1, C1, T1	4/23/2010 20:31	0.178	96.2	1.2	460	6.03
1004718	S1, C1, T1	4/23/2010 22:12	0.132	95.7	2.3	456	6.31
1004719	S1, C1, T1	4/23/2010 22:27	0.083	93.6	2.1	470	6.47
1004720	S1, C1, T1	4/23/2010 22:41	0.039	93.3	3.7	482	6.19
1004721	S1, C1, T1	4/23/2010 23:32	0.053	92.4	3.9	454	7.03
1004722	S1, C1, T1	4/23/2010 23:47	0.110	92.9	2.4	464	6.49

dw = dry weight

* Times reported in CST

** ORP measurements corrected for reference electrode as specified in EPA Method 3060A

NR = Not requested

U = Sample concentration is less than the estimated Method Detection Limit (eMDL)

J = Sample concentration is between the eMDL and the Reporting Limit (RL)

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Sample Results

Sample ID	Batch Identifiers	Date & Time Analyzed for Cr(VI)*	Cr(VI) in mg/kg (dw)	% Solids	TOC in %	ORP (mV)**	pH
1004723	S1, C2, T1	4/21/2010 22:52	0.020 J	95.9	3.7	433	7.15
1004724	S1, C2, T1	4/21/2010 22:23	0.029	95.8	5.2	416	7.78
1004725	S1, C2, T1	4/22/2010 0:04	0.233	92.4	3.2	431	7.54
1004726	S1, C2, T1	4/22/2010 0:19	0.096	93.0	2.0	436	7.47
1004727	S1, C2, T1	4/22/2010 0:33	0.049	97.8	1.8	430	7.72
1004728	S1, C2, T1	4/22/2010 0:48	0.148	93.5	2.3	435	7.25
1004729	S1, C2, T1	4/22/2010 1:39	0.073	88.1	3.1	444	7.25

dw = dry weight

* Times reported in CST

** ORP measurements corrected for reference electrode as specified in EPA Method 3060A

NR = Not requested

U = Sample concentration is less than the estimated Method Detection Limit (eMDL)

J = Sample concentration is between the eMDL and the Reporting Limit (RL)

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Sample Results

Sample ID	Batch Identifiers	Date & Time Analyzed for Cr(VI)*	Cr(VI) in mg/kg (dw)	% Solids	TOC in %	ORP (mV)**	pH
1004730	S1, C3, T1	4/22/2010 16:56	0.325	93.9	1.4	443	7.14
1004731	S2, C3, T1	4/22/2010 16:11	0.153	93.5	2.3	441	7.55
1004732	S2, C3, T1	4/22/2010 16:41	0.086	95.0	1.4	451	7.54
1004733	S2, C3, T1	4/22/2010 18:08	0.034	97.2	3.4	450	7.41
1004734	S2, C3, T1	4/22/2010 18:23	0.050	97.6	2.2	442	7.90
1004735	S2, C3, T1	4/22/2010 18:37	0.095	93.2	2.2	440	7.00

dw = dry weight

* Times reported in CST

** ORP measurements corrected for reference electrode as specified in EPA Method 3060A

NR = Not requested

U = Sample concentration is less than the estimated Method Detection Limit (eMDL)

J = Sample concentration is between the eMDL and the Reporting Limit (RL)

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Sample Results

Sample ID	Batch Identifiers	Date & Time Analyzed for Cr(VI)*	Cr(VI) in mg/kg (dw)	% Solids	TOC in %	ORP (mV)**	pH
1004736	S2, C4, T2	4/21/2010 18:02	1.11	92.5	3.0	467	6.57
1004737	S2, C4	4/21/2010 17:33	0.652	93.5	NR	NR	NR
1004738	S2, C4	4/21/2010 17:40	0.779	93.0	NR	NR	NR
1004739	S2, C4, T2	4/21/2010 19:14	1.13	96.2	5.8	413	7.89
1004740	S2, C4	4/21/2010 19:36	0.715	90.8	NR	NR	NR
1004741	S2, C4	4/21/2010 19:43	0.674	96.1	NR	NR	NR
1004742	S2, C4, T2	4/21/2010 19:51	3.45	97.1	2.1	425	7.58
1004743	S2, C4	4/21/2010 20:27	4.57	96.2	NR	NR	NR
1004744	S2, C4	4/21/2010 20:34	4.38	92.9	NR	NR	NR
1004745	S2, C4	4/21/2010 20:41	3.76	92.9	NR	NR	NR

dw = dry weight

* Times reported in CST

** ORP measurements corrected for reference electrode as specified in EPA Method 3060A

NR = Not requested

U = Sample concentration is less than the estimated Method Detection Limit (eMDL)

J = Sample concentration is between the eMDL and the Reporting Limit (RL)

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Quality Control Summary - Preparation Blank Summary

Analyte	Units	Batch	PBS1	PBS2	PBS3	PBS4	Mean	StdDev	eMDL	RL
TOC	%	T1	< 0.05	-	-	-	-	-	-	0.05
TOC	%	T2	< 0.05	-	-	-	-	-	-	0.05
Cr(VI)	mg/kg (dw)	C1	0.009	0.006	0.011	0.007	0.009	0.002	0.007	0.025
Cr(VI)	mg/kg (dw)	C2	0.010	0.009	0.010	0.010	0.010	0.001	0.002	0.025
Cr(VI)	mg/kg (dw)	C3	0.011	0.005	0.010	0.014	0.010	0.003	0.010	0.025
Cr(VI)	mg/kg (dw)	C4	0.006	0.006	0.007	0.008	0.007	0.001	0.003	0.025

eMDL = Estimated Method Detection Limit

RL = Reporting Limit

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Quality Control Summary - Laboratory Control Samples

Analyte	Units	Batch	LCS	True Value	Result	Recovery
TOC	%	T1	LCS	1.2	1.1	91.7
TOC	%	T2	LCS	1.2	1.1	91.7
Cr(III)	mg/kg (dw)	C1	LCS	5.000	0.009	0.2
Cr(VI)	mg/kg (dw)	C1	LCS	5.000	4.157	83.1
PbCrO ₄	mg/kg (dw)	C1	LCS	6371	4957	77.8
Cr(VI)	mg/kg (dw)	C1	NIST 2701*	388.7	373.6	96.1
Cr(III)	mg/kg (dw)	C2	LCS	5.000	0.010	0.2
Cr(VI)	mg/kg (dw)	C2	LCS	5.000	4.900	98.0
PbCrO ₄	mg/kg (dw)	C2	LCS	5566	5050	90.7
Cr(VI)	mg/kg (dw)	C2	NIST 2701*	388.7	456.1	117.4
Cr(III)	mg/kg (dw)	C3	LCS	5.000	0.007	0.1
Cr(VI)	mg/kg (dw)	C3	LCS	5.000	4.507	90.1
PbCrO ₄	mg/kg (dw)	C3	LCS	6532	5844	89.5
Cr(VI)	mg/kg (dw)	C3	NIST 2701*	388.7	398.9	102.6
Cr(III)	mg/kg (dw)	C4	LCS	5.000	0.008	0.2
Cr(VI)	mg/kg (dw)	C4	LCS	5.000	4.756	95.1
PbCrO ₄	mg/kg (dw)	C4	LCS	6596	5866	88.9
Cr(VI)	mg/kg (dw)	C4	NIST 2701*	388.7	428.1	110.1

* True value listed is the mean value for Method 7199 in Table A2 of the NIST 2701 CoA

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Quality Control Summary - Matrix Duplicate / Triplicate

Analyte	Units	Batch	Sample ID	Rep 1	Rep 2	Rep 3	Mean	RSD
TOC	%	T1	1004716	3.1	3.1	3.1	3.1	0.0
TOC	%	T1	1004735	2.2	2.4	1.7	2.1	17.2
TOC	%	T2	1004739	5.8	6.8	5.7	6.1	10.0

Quality Control Summary - Matrix Duplicate

Analyte	Units	Batch	Sample ID	Rep 1	Rep 2	Mean	RPD
% Solids	%	S1	1004716	95.58	95.59	95.58	0.0
% Solids	%	S2	1004731	93.51	93.13	93.32	0.4
Cr(VI)	mg/kg (dw)	C1	1004716	0.060	0.063	0.061	5.1
Cr(VI)	mg/kg (dw)	C2	1004723	0.020 J	0.022 J	0.021 J	9.2
Cr(VI)	mg/kg (dw)	C3	1004730	0.325	0.312	0.318	4.1
Cr(VI)	mg/kg (dw)	C4	1004736	1.112	0.938	1.025	17.0

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Quality Control Summary - Matrix Spike / Matrix Spike Duplicate

Analyte	Units	Batch	Sample ID	Spike Conc	MS Result	Recovery	MSD			RPD
							Spike Conc	Result	Recovery	
Cr(III)	mg/kg (dw)	C1	1004716	5.125	0.116	1.1	5.295	0.108	0.9	18.1
Cr(VI)	mg/kg (dw)	C1	1004716	5.094	0.411	6.9*	5.220	0.440	7.3*	5.5
PbCrO ₄	mg/kg (dw)	C1	1004716	7890	5569	70.6*	7250	5118	70.6*	0.0
Cr(VI)	mg/kg (dw)	C1	1004717	5.102	3.364	62.4*	-	-	-	-
Cr(VI)	mg/kg (dw)	C1	1004718	5.169	2.992	55.3*	-	-	-	-
Cr(VI)	mg/kg (dw)	C1	1004719	5.388	3.547	64.3*	-	-	-	-
Cr(VI)	mg/kg (dw)	C1	1004720	5.377	0.173	2.5*	-	-	-	-
Cr(VI)	mg/kg (dw)	C1	1004721	5.472	0.421	6.7*	-	-	-	-
Cr(VI)	mg/kg (dw)	C1	1004722	5.355	2.818	50.6*	-	-	-	-

* The recovery is below the established control limit of 75%; please see narrative.

** The RPD is above the established control limit of 25%; please see narrative.

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
 Contact: Michael Stroh

Date: May 11, 2010
 Report Generated by: Ben Wozniak
 Applied Speciation and Consulting, LLC

Quality Control Summary - Matrix Spike / Matrix Spike Duplicate

Analyte	Units	Batch	Sample ID	Spike Conc	MS Result	Recovery	MSD			RPD
							Spike Conc	Result	Recovery	
Cr(III)	mg/kg (dw)	C2	1004723	5.183	0.048	0.5	5.185	0.045	0.5	13.1
Cr(VI)	mg/kg (dw)	C2	1004723	5.227	0.673	12.5*	5.182	1.296	24.6*	65.4**
PbCrO ₄	mg/kg (dw)	C2	1004723	6214	4910	79.0	5957	4547	76.3	3.4
Cr(VI)	mg/kg (dw)	C2	1004724	5.148	0.525	9.6*	-	-	-	-
Cr(VI)	mg/kg (dw)	C2	1004725	5.147	2.691	47.8*	-	-	-	-
Cr(VI)	mg/kg (dw)	C2	1004726	5.324	2.871	52.1*	-	-	-	-
Cr(VI)	mg/kg (dw)	C2	1004727	5.098	0.298	4.9*	-	-	-	-
Cr(VI)	mg/kg (dw)	C2	1004728	5.193	1.680	29.5*	-	-	-	-
Cr(VI)	mg/kg (dw)	C2	1004729	5.714	3.205	54.8*	-	-	-	-

* The recovery is below the established control limit of 75%; please see narrative.

** The RPD is above the established control limit of 25%; please see narrative.

Quality Control Summary - NIST 2701 Matrix Spike / Matrix Spike Duplicate / Matrix Spike Triplicate

Analyte	Units	Batch	Sample ID	Spike Conc	MS Result	Recovery	RSD
Cr(VI)	mg/kg (dw)	C2	1004729	18.70	10.00	53.1*	5.7
Cr(VI)	mg/kg (dw)	C2	1004729	16.61	8.615	51.4*	-
Cr(VI)	mg/kg (dw)	C2	1004729	21.10	12.18	57.4*	-

* The recovery is below the established control limit of 75%; please see narrative.

Note: True value for the matrix spike calculated using the mean value for Method 7199 in Table A2 of the NIST 2701 CoA

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
 Contact: Michael Stroh

Date: May 11, 2010
 Report Generated by: Ben Wozniak
 Applied Speciation and Consulting, LLC

Quality Control Summary - Matrix Spike / Matrix Spike Duplicate

Analyte	Units	Batch	Sample ID	Spike Conc	MS Result	Recovery	MSD			RPD
							Spike Conc	Result	Recovery	
Cr(III)	mg/kg (dw)	C3	1004730	5.370	0.722	7.5	5.274	0.540	4.2	56.6**
Cr(VI)	mg/kg (dw)	C3	1004730	5.306	4.633	81.3	5.189	4.710	84.6	4.0
PbCrO ₄	mg/kg (dw)	C3	1004730	7300	6136	84.1	7193	6206	86.3	2.6
Cr(VI)	mg/kg (dw)	C3	1004731	5.291	4.079	74.2*	-	-	-	-
Cr(VI)	mg/kg (dw)	C3	1004732	5.375	3.571	64.8*	-	-	-	-
Cr(VI)	mg/kg (dw)	C3	1004733	4.979	0.236	4.1*	-	-	-	-
Cr(VI)	mg/kg (dw)	C3	1004734	5.073	2.269	43.7*	-	-	-	-
Cr(VI)	mg/kg (dw)	C3	1004735	5.335	2.765	50.0*	-	-	-	-

* The recovery is below the established control limit of 75%; please see narrative.

** The RPD is above the established control limit of 25%; please see narrative.

Hexavalent Cr & Conventionals Results for the Missouri Department of Natural Resources
 Contact: Michael Stroh

Date: May 11, 2010
 Report Generated by: Ben Wozniak
 Applied Speciation and Consulting, LLC

Quality Control Summary - Matrix Spike / Matrix Spike Duplicate

Analyte	Units	Batch	Sample ID	Spike Conc	MS Result	Recovery	MSD			RPD
							Result	Recovery	RPD	
Cr(III)	mg/kg (dw)	C4	1004736	5.427	1.234	3.9	5.191	0.782	-4.7	2064**
Cr(VI)	mg/kg (dw)	C4	1004736	5.391	0.828	-3.6*	5.374	1.016	-0.2*	182.9**
PbCrO ₄	mg/kg (dw)	C4	1004736	6857	5257	76.6	6969	5258	75.4	1.6
Cr(VI)	mg/kg (dw)	C4	1004739	5.110	1.050	-1.6*	-	-	-	-
Cr(VI)	mg/kg (dw)	C4	1004742	5.122	8.149	91.8	-	-	-	-

* The recovery is below the established control limit of 75%; please see narrative.

** The RPD is above the established control limit of 25%; please see narrative.

Quality Control Summary - NIST 2701 Matrix Spike

Analyte	Units	Batch	Sample ID	Spike Conc	MS Result	Recovery
Cr(VI)	mg/kg (dw)	C4	1004739	15.39	1.221	0.6*
Cr(VI)	mg/kg (dw)	C4	1004742	17.57	17.45	79.7

* The recovery is below the established control limit of 75%; please see narrative.

Note: True value for the matrix spike calculated using the mean value for Method 7199 in Table A2 of the NIST 2701 CoA

Hexavalent Cr Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Quality Control Summary - Historical Calibration Standards

Cr(VI) True Value	Cr(VI) Measured Result	Percent Recovery
0.050	0.051	102.9
0.050	0.054	107.6
0.050	0.064	127.3
0.050	0.061	121.9
0.500	0.507	101.3
5.000	5.039	100.8
25.00	25.03	100.1
0.050	0.054	108.9
0.050	0.055	109.7
0.050	0.059	118.0
0.050	0.056	112.0
0.500	0.506	101.1
5.000	5.091	101.8
25.00	24.96	99.8
0.050	0.057	113.5
0.050	0.061	122.8
0.050	0.069	138.0
0.050	0.063	125.4
0.500	0.537	107.4
5.000	5.111	102.2
25.00	24.97	99.9

All results are reported in $\mu\text{g/L}$

Hexavalent Cr Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Quality Control Summary - Historical CCV Standards

Cr(VI) True Value	Cr(VI) Measured Result	Percent Recovery
5.000	4.660	93.2
5.000	5.049	101.0
5.000	5.079	101.6
5.000	5.254	105.1
5.000	5.259	105.2
5.000	5.021	100.4
5.000	5.312	106.2
5.000	5.175	103.5
5.000	5.242	104.8
5.000	5.102	102.0
5.000	5.159	103.2
5.000	4.568	91.4
5.000	4.899	98.0
5.000	4.881	97.6
5.000	4.848	97.0
5.000	4.968	99.4
5.000	4.914	98.3
5.000	4.947	98.9
5.000	4.845	96.9
5.000	5.030	100.6

CCV = Continuing Calibration Verification

All results are reported in $\mu\text{g/L}$

Hexavalent Cr Results for the Missouri Department of Natural Resources
Contact: Michael Stroh

Date: May 11, 2010
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Quality Control Summary - Historical Second Source Standards

Cr(VI) True Value	Cr(VI) Measured Result	Percent Recovery
5.000	5.495	109.9
5.000	5.107	102.1
100.0	95.38	95.4
5.000	4.932	98.6
5.000	4.706	94.1
20.00	20.30	101.5
5.000	5.029	100.6
100.0	107.2	107.2
5.000	5.369	107.4
5.000	5.557	111.1
5.000	4.986	99.7
5.000	5.474	109.5
5.000	5.445	108.9
5.000	4.546	90.9
5.000	4.900	98.0
5.000	4.756	95.1
5.000	4.507	90.1
5.000	4.157	83.1

Second source standard = Cr(VI) Blank Spike (from 3060A Extraction)
All results are reported in mg/kg

Hexavalent Cr Results for the Missouri Department of Natural Resources
 Contact: Michael Stroh

Date: May 11, 2010
 Report Generated by: Ben Wozniak
 Applied Speciation and Consulting, LLC

Quality Control Summary - Historical Matrix Spikes

Ambient Cr(VI) Conc.	MS		MSD			MSD Recovery	RPD
	MS Spike Conc.	Measured Result	MS Recovery	MSD Spike Conc.	Measured Result		
0.061	5.094	0.411	6.9	5.220	0.440	7.3	5.5
0.178	5.102	3.364	62.4	-	-	-	-
0.132	5.169	2.992	55.3	-	-	-	-
0.083	5.388	3.547	64.3	-	-	-	-
0.039	5.377	0.173	2.5	-	-	-	-
0.053	5.472	0.421	6.7	-	-	-	-
0.110	5.355	2.818	50.6	-	-	-	-
0.021	5.227	0.673	12.5	5.182	1.296	24.6	65.4
0.029	5.148	0.525	9.6	-	-	-	-
0.233	5.147	2.691	47.8	-	-	-	-
0.096	5.324	2.871	52.1	-	-	-	-
0.049	5.098	0.298	4.9	-	-	-	-
0.148	5.193	1.680	29.5	-	-	-	-
0.073	5.714	3.205	54.8	-	-	-	-
0.318	5.306	4.633	81.3	5.189	4.710	84.6	4.0
0.153	5.291	4.079	74.2	-	-	-	-
0.086	5.375	3.571	64.8	-	-	-	-
0.034	4.979	0.236	4.1	-	-	-	-
0.050	5.073	2.269	43.7	-	-	-	-
0.095	5.335	2.765	50.0	-	-	-	-
1.025	5.391	0.828	-3.6	5.374	1.016	-0.2	182.9
1.131	5.110	1.050	-1.6	-	-	-	-
3.448	5.122	8.149	91.8	-	-	-	-

All results are reported in mg/kg



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID:

Collector's Name: Transfer COC to Applied Speciation and Consulting, LLC (Please Print)							Description of Shipment				
Affiliation: ESP KCRO NERO SERO SLRO SWRO WPP (circle one) DGLS HWP Other:							x Shipped-Carrier: Next Day Air				
							x Tape sealed and initialed				
							Hand Delivered		No. Of Containers: 4		
Sample Number	Sample Collected	Analyses						Sample Type	For Lab Use Only		
1004716 (Sample A)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						Grab x Composite Modified Other:	Matrix 1 Soil 2 oz glass Sludge Other:	Container 1L amber Cubitainer 8 oz glass VOA vial Encore Other:	Preserved <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other
1004717 (Sample B)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						Grab x Composite Modified Other:	Water 1 Soil 2 oz glass Sludge Other:	1L amber Cubitainer 8 oz glass VOA vial Encore Other:	<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other
1004718 (Sample C)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						Grab x Composite Modified Other:	Water 1 Soil 2 oz glass Sludge Other:	1L amber Cubitainer 8 oz glass VOA vial Encore Other:	<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other
1004719 (Sample D)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						Grab x Composite Modified Other:	Water 1 Soil 2 oz glass Sludge Other:	1L amber Cubitainer 8 oz glass VOA vial Encore Other:	<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other
Relinquished By:	<i>Sgt Dunnies</i>			Received By: <i>Jeff Klem</i>			Date: 4/15/10		Time: 1732		
Relinquished By:				Received By:			Date:		Time:		
Relinquished By:				Received By:			Date:		Time:		



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID:

Collector's Name: Transfer COC to Applied Speciation and Consulting, LLC <i>(Please Print)</i>								Description of Shipment				
Affiliation: <input checked="" type="checkbox"/> ESP <input type="checkbox"/> KCRO <input type="checkbox"/> NERO <input type="checkbox"/> SERO <input type="checkbox"/> SIRO <input type="checkbox"/> SWRO <input type="checkbox"/> WPP <i>(circle one)</i> <input type="checkbox"/> DGLS <input type="checkbox"/> HWP <input type="checkbox"/> Other:								<input checked="" type="checkbox"/> Shipped-Carrier: Next Day Air <input checked="" type="checkbox"/> Tape sealed and initialed <input type="checkbox"/> Hand Delivered				
								No. Of Containers: 4				
Sample Number	Sample Collected	Analyses						Sample Type	Matrix	For Lab Use Only		
1004720 <i>(Sample A)</i>	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input checked="" type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 Soil <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> HNO ₃ <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfect <input type="checkbox"/> Other	Container Preserved
	Time: 1239	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:					
1004721 <i>(Sample B)</i>	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input checked="" type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 Soil <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> HNO ₃ <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfect <input type="checkbox"/> Other	Container Preserved
	Time: 941	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:					
1004722 <i>(Sample C)</i>	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input checked="" type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 Soil <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> HNO ₃ <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfect <input type="checkbox"/> Other	Container Preserved
	Time: 1430	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:					
1004723 <i>(Sample D)</i>	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input checked="" type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 Soil <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> HNO ₃ <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfect <input type="checkbox"/> Other	Container Preserved
	Time: 1227	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:					
Relinquished By: <i>Jori Dunnire</i> 4/14/16				Received By: <i>Barbara Hem</i> -4°C				Date: 4/15/10	Time: 1732			
Relinquished By:				Received By:				Date:	Time:			
Relinquished By:				Received By:				Date:	Time:			



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID:

<p>Collector's Name: Transfer COC to Applied Speciation and Consulting, LLC (Please Print)</p> <p>Affiliation: <input checked="" type="checkbox"/> ESP <input type="checkbox"/> KCRO <input type="checkbox"/> NERO <input type="checkbox"/> SERO <input type="checkbox"/> SLRO <input type="checkbox"/> SWRO <input type="checkbox"/> WPP (circle one) <input type="checkbox"/> DGLS <input type="checkbox"/> HWP <input type="checkbox"/> Other:</p>							<p>Description of Shipment</p> <p><input checked="" type="checkbox"/> Shipped-Carrier: Next Day Air <input checked="" type="checkbox"/> Tape sealed and initialed <input type="checkbox"/> Hand Delivered</p> <p>No. of Containers: 4</p>					
Sample Number	Sample Collected	Analyses						Sample Type	Matrix	For Lab Use Only		
● 1004724 (Sample A)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 oz glass <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 1/8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<p>Container</p> <p>Preserved</p>	
											<input type="checkbox"/> 120 mL <input type="checkbox"/> Cubitainer <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> Disinfectied <input type="checkbox"/> Other:	H_2SO_4 HNO_3 $NAOH$ HCl $1~4^{\circ}C$ (None) $Disinfectied$ $Other$
● 1004725 (Sample B)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 oz glass <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 1/8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<p>Container</p> <p>Preserved</p>	
											<input type="checkbox"/> 120 mL <input type="checkbox"/> Cubitainer <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> Disinfectied <input type="checkbox"/> Other:	H_2SO_4 HNO_3 $NAOH$ HCl $1~4^{\circ}C$ (None) $Disinfectied$ $Other$
● 1004726 (Sample C)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 oz glass <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 1/8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<p>Container</p> <p>Preserved</p>	
											<input type="checkbox"/> 120 mL <input type="checkbox"/> Cubitainer <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> Disinfectied <input type="checkbox"/> Other:	H_2SO_4 HNO_3 $NAOH$ HCl $1~4^{\circ}C$ (None) $Disinfectied$ $Other$
● 1004727 (Sample D)	Date: 04/07/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 oz glass <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 1/8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<p>Container</p> <p>Preserved</p>	
											<input type="checkbox"/> 120 mL <input type="checkbox"/> Cubitainer <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> Disinfectied <input type="checkbox"/> Other:	H_2SO_4 HNO_3 $NAOH$ HCl $1~4^{\circ}C$ (None) $Disinfectied$ $Other$
Relinquished By: <i>Lori Dunnier</i>		Received By: <i>Reitzen</i>		Date: 4/15/10		Time: 1732						
Relinquished By:		Received By:		Date:		Time:						
Relinquished By:		Received By:		Date:		Time:						



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID: _____

Collector's Name: (Please Print)		Transfer COC to Applied Speciation and Consulting, LLC						Description of Shipment				
Affiliation: (circle one)		ESP	KCRO	NERO	SERO	SLRO	SWRO	WPP	<input checked="" type="checkbox"/> Shipped-Carrier: Next Day Air <input checked="" type="checkbox"/> Tape sealed and initialed <input type="checkbox"/> Hand Delivered			
		DGLS	HWP	Other:						No. Of Containers: 4		
Sample Number	Sample Collected	Analyses						Sample Type	Matrix	For Lab Use Only		
1004728 (Sample A)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	Water	1L amber	120 mL	<chem>H2SO4</chem>
									Soil	Cubitainer		<chem>HNO3</chem>
1004729 (Sample B)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	Organic	2 oz glass	Nalgene	<chem>NAOH</chem>
									Sludge	8 oz glass	1L	<chem>HCL</chem>
1004730 (Sample C)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	Other:	VOA vial	500mL	<chem>1 4°C(None)</chem>
										Encore	250mL	<chem>Disinfect</chem>
1004731 (Sample D)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	Water	1L amber	120 mL	<chem>H2SO4</chem>
									Soil	Cubitainer		<chem>HNO3</chem>
Relinquished By:	<i>Joi Dunnire</i> 4/4/10						Received By:	<i>Autoken</i>	-4°C	Date:	4/15/10	Time: 1732
										Date:		Time:
Relinquished By:							Received By:		Date:		Time:	
Relinquished By:							Received By:		Date:		Time:	



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID:

Collector's Name: Transfer COC to Applied Speciation and Consulting, LLC <i>(Please Print)</i>							Description of Shipment					
Affiliation: <input checked="" type="checkbox"/> ESP <input type="checkbox"/> KCRO <input type="checkbox"/> NERO <input type="checkbox"/> SERO <input type="checkbox"/> SLRO <input type="checkbox"/> SWRO <input type="checkbox"/> WPP <i>(circle one)</i> <input type="checkbox"/> DGLS <input type="checkbox"/> HWP <input type="checkbox"/> Other:							<input checked="" type="checkbox"/> Shipped-Carrier: Next Day Air <input checked="" type="checkbox"/> Tape sealed and initialed <input type="checkbox"/> Hand Delivered					
							No. of Containers: 4					
Sample Number	Sample Collected	Analyses						Sample Type	Matrix	Container	For Lab Use Only	
● 1004732 <i>(Sample A)</i>	Date:	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input checked="" type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input checked="" type="checkbox"/> Cubitainer <input type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:	<input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> HNO ₃ <input type="checkbox"/> NAOH <input type="checkbox"/> HCL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:
	04/06/10	D.O	Flow	pH	Spec. Cond.	Temp.	Other:					
● 1004733 <i>(Sample B)</i>	Date:	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input checked="" type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input checked="" type="checkbox"/> Cubitainer <input type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:	<input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> HNO ₃ <input type="checkbox"/> NAOH <input type="checkbox"/> HCL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:
	04/06/10	D.O	Flow	pH	Spec. Cond.	Temp.	Other:					
● 1004734 <i>(Sample C)</i>	Date:	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input checked="" type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input checked="" type="checkbox"/> Cubitainer <input type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:	<input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> HNO ₃ <input type="checkbox"/> NAOH <input type="checkbox"/> HCL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:
	04/06/10	D.O	Flow	pH	Spec. Cond.	Temp.	Other:					
● 1004735 <i>(Sample D)</i>	Date:	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input checked="" type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input checked="" type="checkbox"/> Cubitainer <input type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> Nalgene <input type="checkbox"/> 1L <input type="checkbox"/> 500mL <input type="checkbox"/> 250mL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:	<input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> HNO ₃ <input type="checkbox"/> NAOH <input type="checkbox"/> HCL <input type="checkbox"/> 4°C(None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:
	04/06/10	D.O	Flow	pH	Spec. Cond.	Temp.	Other:					
Relinquished By:	<i>Sophie Dunnie 4/4/10</i>						Received By:	<i>John Kan</i>			Date: 4/15/10	Time: 1732
Relinquished By:							Received By:				Date:	Time:
Relinquished By:							Received By:				Date:	Time:



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID:

<p>Collector's Name: Transfer COC to Applied Speciation and Consulting, LLC (Please Print)</p> <p>Affiliation: <input checked="" type="checkbox"/> ESP <input type="checkbox"/> KCRO <input type="checkbox"/> NERO <input type="checkbox"/> SERO <input type="checkbox"/> SLRO <input type="checkbox"/> SWRO <input type="checkbox"/> WPP (circle one) <input type="checkbox"/> DGLS <input type="checkbox"/> HWP <input type="checkbox"/> Other:</p>							<p>Description of Shipment</p> <p><input checked="" type="checkbox"/> Shipped-Carrier: Next Day Air <input checked="" type="checkbox"/> Tape sealed and initialed <input type="checkbox"/> Hand Delivered</p> <p>No. of Containers: 4</p>					
Sample Number	Sample Collected	Analyses						Sample Type	Matrix	For Lab Use Only		
● 1004736 (Sample A)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 Soil <input type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> 500 mL <input type="checkbox"/> 250 mL <input type="checkbox"/> 4°C (None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:	<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem>
● 1004737 (Sample B)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, Percent Moisture						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 Soil <input type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> 500 mL <input type="checkbox"/> 250 mL <input type="checkbox"/> 4°C (None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:	<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem>
● 1004738 (Sample C)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, Percent Moisture						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 Soil <input type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> 500 mL <input type="checkbox"/> 250 mL <input type="checkbox"/> 4°C (None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:	<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem>
● 1004739 (Sample D)	Date: 04/07/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> 1/2 Soil <input type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	<input type="checkbox"/> 120 mL <input type="checkbox"/> 500 mL <input type="checkbox"/> 250 mL <input type="checkbox"/> 4°C (None) <input type="checkbox"/> Disinfected <input type="checkbox"/> Other:	<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem> <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCl</chem>
For Lab Use Only	Time: 1252	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	For Lab Use Only	Time: 1245	For Lab Use Only	Time: 1241	
For Lab Use Only	Time: 835	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	For Lab Use Only	Time: 835	For Lab Use Only	Time: 835	
Relinquished By: <i>John Dunnin</i> 4/4/10				Received By: <i>John Keen</i> -40°C				Date: 4/15/10	Time: 1732			
Relinquished By:				Received By:				Date:	Time:			
Relinquished By:				Received By:				Date:	Time:			



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID: _____

Collector's Name: Transfer COC to Applied Speciation and Consulting, LLC <i>(Please Print)</i>							Description of Shipment					
Affiliation: ESP KCRO NERO SERO SLRO SWRO WPP <i>(circle one)</i> DGLS HWP Other:							<input checked="" type="checkbox"/> Shipped-Carrier: Next Day Air <input checked="" type="checkbox"/> Tape sealed and initialed Hand Delivered					
							No. of Containers: 4					
Sample Number	Sample Collected	Analyses						Sample Type	Matrix	For Lab Use Only		
● 1004740 (Sample A)	Date: 04/07/10	Hexavalent Cr 6+ by EPA modified method 7199, Percent Moisture						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> Cubitainer <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	Container Preserved	
											120 mL <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other	
● 1004741 (Sample B)	Date: 04/07/10	Hexavalent Cr 6+ by EPA modified method 7199, Percent Moisture						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> Cubitainer <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	120 mL <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other	
											<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other	
● 1004742 (Sample C)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, TOC, pH, Percent Moisture, ORP						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> Cubitainer <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	120 mL <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other	
											<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other	
● 1004743 (Sample D)	Date: 04/06/10	Hexavalent Cr 6+ by EPA modified method 7199, Percent Moisture						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	<input type="checkbox"/> Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<input type="checkbox"/> 1L amber <input type="checkbox"/> Cubitainer <input checked="" type="checkbox"/> 2 oz glass <input type="checkbox"/> 8 oz glass <input type="checkbox"/> VOA vial <input type="checkbox"/> Encore <input type="checkbox"/> Other:	120 mL <chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other	
											<chem>H2SO4</chem> <chem>HNO3</chem> <chem>NAOH</chem> <chem>HCL</chem> <chem>4°C(None)</chem> Disinfected Other	
Relinquished By: <i>Jeff Dunmire 4/4/10</i>							Received By: <i>Andy Lew -4°C</i>	Date: 4/15/10	Time: 1732			
Relinquished By:							Received By:	Date:	Time:			
Relinquished By:							Received By:	Date:	Time:			



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID:

Collector's Name: Transfer COC to Applied Speciation and Consulting, LLC <i>(Please Print)</i>								Description of Shipment				
Affiliation: ESP KCRO NERO SERO SLRO SWRO WPP <i>(circle one)</i> DGLS HWP Other:								<input checked="" type="checkbox"/> Shipped-Carrier: Next Day Air <input checked="" type="checkbox"/> Tape sealed and initialed <input type="checkbox"/> Hand Delivered				
								No. of Containers: <i>Co 4/10 4/2</i>				
Sample Number	Sample Collected	Analyses						Sample Type	Matrix	For Lab Use Only		
● 1004744 <i>(Sample A)</i>	Date:	Hexavalent Cr 6+ by EPA modified method 7199, Percent Moisture						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	Water	1L amber	120 mL	<i>H₂SO₄</i>
	04/06/10								1 Soil	Cubitainer	<i>HNO₃</i>	
<i>For Lab Use Only</i>	Time:	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	<input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	2 oz glass	Nalgene	<i>NAOH</i>	
	1640								8 oz glass	1L	<i>HCL</i>	
● 1004745 <i>(Sample B)</i>	Date:	Hexavalent Cr 6+ by EPA modified method 7199, Percent Moisture						<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	Water	1L amber	120 mL	<i>H₂SO₄</i>
	04/06/10								1 Soil	Cubitainer	<i>HNO₃</i>	
<i>For Lab Use Only</i>	Time:	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	<input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	2 oz glass	Nalgene	<i>NAOH</i>	
									8 oz glass	1L	<i>HCL</i>	
 <i>(Sample C)</i>	Date:							<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	Water	1L amber	120 mL	<i>H₂SO₄</i>
									1 Soil	Cubitainer	<i>HNO₃</i>	
<i>For Lab Use Only</i>	Time:	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	<input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	2 oz glass	Nalgene	<i>NAOH</i>	
									8 oz glass	1L	<i>HCL</i>	
 <i>(Sample D)</i>	Date:							<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:	Water	1L amber	120 mL	<i>H₂SO₄</i>
									1 Soil	Cubitainer	<i>HNO₃</i>	
<i>For Lab Use Only</i>	Time:	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	<input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	2 oz glass	Nalgene	<i>NAOH</i>	
									8 oz glass	1L	<i>HCL</i>	
Relinquished By: <i>Jeff Durmire 4/4/10</i>								Received By: <i>Jeff Durmire -4°C</i>	Date: <i>4/15/10</i>	Time: <i>1732</i>		
Relinquished By: <i>Jeff Durmire</i>								Received By: <i></i>	Date: <i></i>	Time: <i></i>		
Relinquished By: <i></i>								Received By: <i></i>	Date: <i></i>	Time: <i></i>		



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID: 100413005

B35

Collector's Name: (Please Print) Ken Hannon							Description of Shipment Shipped-Carrier: _____ Tape sealed and initialed <input checked="" type="checkbox"/> Hand Delivered No. of Containers: 8						
Affiliation: <input checked="" type="checkbox"/> ESP KCRO NERO SERO SLRO SWRO WPP (circle one) DGLS HWP Other:													
Sample Number	Sample Collected	Analyses					Sample Type	For Lab Use Only					
		Date:	Hexavalent Chromium , TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) Cr					Grab <input checked="" type="checkbox"/> Composite Modified Other:	Matrix	Container	Preserved		
1 1004716 (Sample A)	4-6-10 Ab18571							Water 2 Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL 500mL 250mL	H₂SO₄ HNO₃ NAOH HCL 4° C(None) Disinfected Other		
2 1004717 (Sample B)	4-6-10 Ab18572	Date:	Time:	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Water 2 Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL 500mL 250mL	H₂SO₄ HNO₃ NAOH HCL 4° C(None) Disinfected Other
3 1004718 (Sample C)	4-6-10 Ab18573	Date:	Time:	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Water 2 Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL 500mL 250mL	H₂SO₄ HNO₃ NAOH HCL 4° C(None) Disinfected Other
4 1004719 (Sample D)	4-6-10 Ab18574	Date:	Time:	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Water 2 Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL 500mL 250mL	H₂SO₄ HNO₃ NAOH HCL 4° C(None) Disinfected Other
Relinquished By: Ken Hannon							Received By: David Neelzay	Date: 4-13-10	Time: 1320				
Relinquished By:							Received By:	Date:	Time:				
Relinquished By:							Received By:	Date:	Time:				

Sample I.D. Letter	Site Description				
Sample A	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)	LDPR. Code: FEPA8	Job Code: NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>PERFORM MATRIX SPIKE¹⁴ FF DU IS</i>				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>	Accuracy <input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	(check one)	Sample Reference ID: 201	
Sample B	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)	LDPR. Code: FEPA8	Job Code: NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>14 FF DU IS</i>				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>	Accuracy <input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	(check one)	Sample Reference ID: 251	
Sample C	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)	LDPR. Code: FEPA8	Job Code: NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>14 FF DU IS</i>				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>	Accuracy <input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	(check one)	Sample Reference ID: 252	
Sample D	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)	LDPR. Code: FEPA8	Job Code: NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>14 FF DU IS</i>				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>	Accuracy <input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	(check one)	Sample Reference ID: 253	
REMARKS: HWP: Michael Stroh <i>PERFORM MATRIX SPIKES ON ALL SAMPLES for Cr¹⁶</i>					



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

2
B35

LABORATORY ORDER ID: 100413005

Collector's Name: <u>Ken Hannon</u> (Please Print)								Description of Shipment Shipped-Carrier: _____ Tape sealed and initialed <input checked="" type="checkbox"/> Hand Delivered				
Affiliation: <input checked="" type="checkbox"/> <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP (circle one) DGLS HWP Other:								No. Of Containers: <u>8</u>				
Sample Number	Sample Collected	Analyses						Sample Type	For Lab Use Only			
5 <u>1004720</u> (Sample A) Date: 4-6-10 Time: 1239								Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water	1L amber	120 mL	H ₂ SO ₄
Hexavalent Chromium , TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) <u>Cr</u>									2 Soil	Cubitainer	HNO ₃	
6 <u>1004721</u> (Sample B) Date: 4-6-10 Time: 0941								Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water	1L amber	120 mL	H ₂ SO ₄
Hexavalent Chromium , TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) <u>Cr</u>									2 Soil	Cubitainer	HNO ₃	
7 <u>1004722</u> (Sample C) Date: 4-6-10 Time: 1430								Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water	1L amber	120 mL	H ₂ SO ₄
Hexavalent Chromium , TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) <u>Cr</u>									2 Soil	Cubitainer	HNO ₃	
8 <u>1004723</u> (Sample D) Date: 4-6-10 Time: 1227								Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water	1L amber	120 mL	H ₂ SO ₄
Hexavalent Chromium , TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) <u>Cr</u>									2 Soil	Cubitainer	HNO ₃	
Relinquished By: <u>Ken Hannon</u>				Received By: <u>Dick Endres</u>				Date: 4-13-10	Time: 1320			
Relinquished By:				Received By:				Date:	Time:			
Relinquished By:				Received By:				Date:	Time:			

Sample I.D. Letter	Site Description					LDPR Code:	Job Code:
Sample A	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)			FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): FF DUIS					Sample Reference ID: 254	
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): X Easting Y Northing		Accuracy (check one)				
Sample B	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)			FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): YARD DUIS					Sample Reference ID: 301	
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): X Easting Y Northing		Accuracy (check one)				
Sample C	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)			FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): YARD DUIS					Sample Reference ID: 302	
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): X Easting Y Northing		Accuracy (check one)				
Sample D	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)			FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): YARD DUIS					Sample Reference ID: 303	
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): X Easting Y Northing		Accuracy (check one)				
REMARKS: HWP: Michael Stroh PERFORM MATRIX SPIKES ON EACH SAMPLE FOR Cr ⁺⁶							



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

B35

LABORATORY ORDER ID: 100473005

Collector's Name: <u>Ken Hannon</u> (Please Print)							Description of Shipment Shipped-Carrier: _____ Tape sealed and initialed <input checked="" type="checkbox"/> Hand Delivered				
Affiliation: <input checked="" type="checkbox"/> <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP (circle one) DGLS HWP Other:							No. Of Containers: 8				
Sample Number	Sample Collected	Analyses					Sample Type	For Lab Use Only			
								Matrix	Container	Preserved	
9 1004724 (Sample A)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) Cr					Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL Disinfected	H ₂ SO ₄ HNO ₃ NAOH HCL 2 4° C(None) Disinfected Other
10 1004725 (Sample B)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) Cr					Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL Disinfected	H ₂ SO ₄ HNO ₃ NAOH HCL 2 4° C(None) Disinfected Other
11 1004726 (Sample C)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) Cr					Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL Disinfected	H ₂ SO ₄ HNO ₃ NAOH HCL 2 4° C(None) Disinfected Other
12 1004727 (Sample D)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) Cr					Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL Disinfected	H ₂ SO ₄ HNO ₃ NAOH HCL 2 4° C(None) Disinfected Other
For Lab Use Only	Time: 1255	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:				
Ab18519											
For Lab Use Only	Time: 1316	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:				
Ab18520											
For Lab Use Only	Time: 0818	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:				
Ab18522											
Relinquished By: <u>Ken Hannon</u>				Received By: <u>Debra Rutherford</u>				Date: 4-13-10	Time: 1320		
Relinquished By:				Received By:				Date:	Time:		
Relinquished By:				Received By:				Date:	Time:		

Sample I.D. Letter	Site Description						
Sample A	Facility ID:	Site/Study Name:	County:			LDPR Code: FEPA8	Job Code: NJ10
		Tannery Sludge Farm Fields	(Multiple)				TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>						
GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)				Sample Reference ID: <i>304</i>	
X Easting		Y Northing				EPE (meters)	
						PDOP	
Sample B	Facility ID:	Site/Study Name:	County:			LDPR Code: FEPA8	Job Code: NJ10
		Tannery Sludge Farm Fields	(Multiple)				TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>						
GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)				Sample Reference ID: <i>305</i>	
X Easting		Y Northing				EPE (meters)	
						PDOP	
Sample C	Facility ID:	Site/Study Name:	County:			LDPR Code: FEPA8	Job Code: NJ10
		Tannery Sludge Farm Fields	(Multiple)				TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>						
GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)				Sample Reference ID: <i>306</i>	
X Easting		Y Northing				EPE (meters)	
						PDOP	
Sample D	Facility ID:	Site/Study Name:	County:			LDPR Code: FEPA8	Job Code: NJ10
		Tannery Sludge Farm Fields	(Multiple)				TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>						
GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)				Sample Reference ID: <i>312</i>	
X Easting		Y Northing				EPE (meters)	
						PDOP	
REMARKS: HWP: Michael Stroh <i>PERFORM Matrix Spikes on All Samples for Cr⁺⁶</i>							



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

4
B35

LABORATORY ORDER ID: 100413005

<p>Collector's Name: <u>Ken Hannon</u> (Please Print)</p> <p>Affiliation: <input checked="" type="checkbox"/> <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP (circle one) DGLS HWP Other:</p>								<p>Description of Shipment</p> <p>Shipped-Carrier: _____ Tape sealed and initialed <input checked="" type="checkbox"/> Hand Delivered</p> <p>No. Of Containers: <u>8</u></p>					
Sample Number	Sample Collected	Analyses						Sample Type	For Lab Use Only				
		Date:	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)						Grab <input checked="" type="checkbox"/> Composite Modified Other:	Matrix	Container	Preserved	
13 1004728 (Sample A)	4-6-10									Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 24°C(None)
14 1004729 (Sample B)	4-6-10									Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 24°C(None)
15 1004730 (Sample C)	4-6-10									Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 24°C(None)
16 1004731 (Sample D)	4-6-10									Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 24°C(None)
For Lab Use Only	Time:	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:						
A618523	1415												
For Lab Use Only	Time:	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:						
A618524	1350												
For Lab Use Only	Time:	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:						
A618525	1407												
Relinquished By:							Received By:			Date:	4-13-10	Time:	1320
Relinquished By:							Received By:			Date:		Time:	
Relinquished By:							Received By:			Date:		Time:	

Sample I.D. Letter	Site Description				
Sample A	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)	LDPR Code: FEPA8	Job Code: NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>		Accuracy (check one)	Sample Reference ID: <i>313</i>	
Sample B	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)	LDPR Code: FEPA8	Job Code: NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i> <i>PERFORM SRM SPIKE IN TRIPPLICATE</i>				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>		Accuracy (check one)	Sample Reference ID: <i>319</i>	
Sample C	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)	LDPR Code: FEPA8	Job Code: NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>		Accuracy (check one)	Sample Reference ID: <i>320</i>	
Sample D	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)	LDPR Code: FEPA8	Job Code: NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>		Accuracy (check one)	Sample Reference ID: <i>325</i>	
REMARKS: HWP: Michael Stroh <i>PERFORM MATRIX SPIKE ON ALL SAMPLES FOR Cr⁺⁶</i> <i>PERFORM SRM SPIKE ON 1004729 IN TRIPPLICATE FOR Cr⁺⁶</i>					



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

B35

LABORATORY ORDER ID: 10047305

Collector's Name: (Please Print) <i>Ken Hannon</i>							Description of Shipment				
Affiliation: <input checked="" type="checkbox"/> ESP KCRO NERO SERO SLRO SWRO WPP (circle one) DGLS HWP Other:							Shipped-Carrier: _____ Tape sealed and initialed <input checked="" type="checkbox"/> Hand Delivered No. Of Containers: 8				
Sample Number	Sample Collected	Analyses					Sample Type	For Lab Use Only			
		D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	Matrix	Container	Preserved	
17 1004732 (Sample A)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) <i>Cr</i>					Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 1/8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL 24°C(None) Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 24°C(None) Disinfected Other
18 1004733 (Sample B)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) <i>Cr</i>					Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 1/8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL 24°C(None) Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 24°C(None) Disinfected Other
19 1004734 (Sample C)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) <i>Cr</i>					Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 1/8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL 24°C(None) Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 24°C(None) Disinfected Other
20 1004735 (Sample D)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al) <i>Cr</i>					Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water <input checked="" type="checkbox"/> Soil Organic Sludge Other:	1L amber Cubitainer 2 oz glass 1/8 oz glass VOA vial Encore Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL 24°C(None) Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 24°C(None) Disinfected Other
Relinquished By: <i>Ken Hannon</i>				Received By: <i>DeeDee Rader</i>				Date: 4-13-10	Time: 1320		
Relinquished By:				Received By:				Date:	Time:		
Relinquished By:				Received By:				Date:	Time:		

Sample I.D. Letter	Site Description				
Sample A	Facility ID:	Site/Study Name:	County:	LDPR Code: Job Code:	
		Tannery Sludge Farm Fields	(Multiple)	FEPA8	NJ10
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>				TSFF
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
X Easting	Y Northing		EPE (meters)	326	
			PDOP		
Sample B	Facility ID:	Site/Study Name:	County:	LDPR Code: Job Code:	
		Tannery Sludge Farm Fields	(Multiple)	FEPA8	NJ10
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>				TSFF
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
X Easting	Y Northing		EPE (meters)	352	
			PDOP		
Sample C	Facility ID:	Site/Study Name:	County:	LDPR Code: Job Code:	
		Tannery Sludge Farm Fields	(Multiple)	FEPA8	NJ10
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>				TSFF
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
X Easting	Y Northing		EPE (meters)	353	
			PDOP		
Sample D	Facility ID:	Site/Study Name:	County:	LDPR Code: Job Code:	
		Tannery Sludge Farm Fields	(Multiple)	FEPA8	NJ10
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>YARD DUIS</i>				TSFF
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
X Easting	Y Northing		EPE (meters)	354	
			PDOP		
REMARKS: HWP: Michael Stroh <i>PERFORM MATRIX SPIKES ON ALL SAMPLES FOR Cr⁶⁰</i>					



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

B35

LABORATORY ORDER ID: 100413085

<p>Collector's Name: <u>Ken Hannon</u> (Please Print)</p> <p>Affiliation: <input checked="" type="checkbox"/> <u>ESP</u> <input type="checkbox"/> <u>KCRO</u> <input type="checkbox"/> <u>NERO</u> <input type="checkbox"/> <u>SERO</u> <input type="checkbox"/> <u>SLRO</u> <input type="checkbox"/> <u>SWRO</u> <input type="checkbox"/> <u>WPP</u> (circle one) <input type="checkbox"/> <u>DGLS</u> <input type="checkbox"/> <u>HWP</u> <input type="checkbox"/> <u>Other:</u></p>								<p>Description of Shipment</p> <p>Shipped-Carrier: _____ Tape sealed and initialed <input checked="" type="checkbox"/> Hand Delivered</p> <p>No. Of Containers: <u>6</u></p>			
Sample Number	Sample Collected	Analyses						Sample Type	For Lab Use Only		
		D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	Matrix	Container	Preserved	
21 1004736 (Sample A)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)						Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water 2 Soil Organic Sludge Other: VOA vial Encore Other: bag	1L amber Cubitainer 2 oz glass 8 oz glass 1L 500mL 250mL	H ₂ SO ₄ HNO ₃ NAOH HCL 2 4° C(None) Disinfected Other
22 1004737 (Sample B)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)						Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water 1 Soil Organic Sludge Other: VOA vial Encore Other:	1L amber Cubitainer 2 oz glass 8 oz glass 1L 500mL 250mL	H ₂ SO ₄ HNO ₃ NAOH HCL 4° C(None) Disinfected Other
23 1004738 (Sample C)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)						Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water 1 Soil Organic Sludge Other: VOA vial Encore Other:	1L amber Cubitainer 2 oz glass 8 oz glass 1L 500mL 250mL	H ₂ SO ₄ HNO ₃ NAOH HCL 4° C(None) Disinfected Other
24 1004739 (Sample D)	Date: 4-7-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)						Grab <input checked="" type="checkbox"/> Composite Modified Other:	Water 2 Soil Organic Sludge Other: VOA vial Encore Other: bag	1L amber Cubitainer 2 oz glass 8 oz glass 1L 500mL 250mL	H ₂ SO ₄ HNO ₃ NAOH HCL 2 4° C(None) Disinfected Other
Relinquished By: <u>Ken Hannon</u>				Received By: <u>Dunk Rader</u>				Date: 4-13-10	Time: 1320		
Relinquished By:				Received By:				Date:	Time:		
Relinquished By:				Received By:				Date:	Time:		

Sample I.D. Letter	Site Description				
Sample A	Facility ID:	Site/Study Name:	County:	LDPR Code: Job Code:	
		Tannery Sludge Farm Fields	(Multiple)	FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): SU 88 repl 1				Sample Reference ID:
GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	205		
X Easting	Y Northing		EPE (meters)		
			PDO		
Sample B	Facility ID:	Site/Study Name:	County:	LDPR Code: Job Code:	
		Tannery Sludge Farm Fields	(Multiple)	FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): SU 88 repl 2				Sample Reference ID:
GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	205		
X Easting	Y Northing		EPE (meters)		
			PDO		
Sample C	Facility ID:	Site/Study Name:	County:	LDPR Code: Job Code:	
		Tannery Sludge Farm Fields	(Multiple)	FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): SU 88 repl 3				Sample Reference ID:
GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	205		
X Easting	Y Northing		EPE (meters)		
			PDO		
Sample D	Facility ID:	Site/Study Name:	County:	LDPR Code: Job Code:	
		Tannery Sludge Farm Fields	(Multiple)	FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): SU 37 REPL 1 PERFORM 1 SRM SPIKE ON THIS SAMPLE				Sample Reference ID:
GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	214		
X Easting	Y Northing		EPE (meters)		
			PDO		
REMARKS: HWP: Michael Stroh PERFORM MATRIX SPIKES KH PERFORM MATRIX SPIKES ON 1004736 and 1004739 For Cr ⁺⁶ PERFORM SRM SPIKE ON 1004739 For Cr ⁺⁶					



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

LABORATORY ORDER ID: 10041305- B35

<p>Collector's Name: <u>Ken Hannon</u> (Please Print)</p> <p>Affiliation: <input checked="" type="checkbox"/> <u>ESP</u> <input type="checkbox"/> <u>KCRO</u> <input type="checkbox"/> <u>NERO</u> <input type="checkbox"/> <u>SERO</u> <input type="checkbox"/> <u>SLRO</u> <input type="checkbox"/> <u>SWRO</u> <input type="checkbox"/> <u>WPP</u> (circle one) <input type="checkbox"/> <u>DGLS</u> <input type="checkbox"/> <u>HWP</u> <input type="checkbox"/> <u>Other:</u></p>							<p>Description of Shipment</p> <p>Shipped-Carrier: _____</p> <p>Tape sealed and initialed</p> <p><input checked="" type="checkbox"/> Hand Delivered</p> <p>No. Of Containers: <u>5</u></p>				
Sample Number	Sample Collected	Analyses					Sample Type	Matrix	Container	Preserved	
25 100474C (Sample A)	Date: 4-7-10	Hexavalent Chromium, TOC, pH, <u>< 4</u> Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)					Grab <input checked="" type="checkbox"/> Composite Modified	Water 1 Soil 2 oz glass 8 oz glass Sludge Other:	1L amber Cubitainer Nalgene 1L VOA vial Encore Other:	120 mL HNO ₃ NAOH HCL 500mL 250mL 4° C(None) Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 4° C(None) Disinfected Other
26 100474I (Sample B)	Date: 4-7-10	Hexavalent Chromium, TOC, pH, <u>< 4</u> Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)					Grab <input checked="" type="checkbox"/> Composite Modified	Water 1 Soil 2 oz glass 8 oz glass Sludge Other:	1L amber Cubitainer Nalgene 1L VOA vial Encore Other:	120 mL HNO ₃ NAOH HCL 500mL 250mL 4° C(None) Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 4° C(None) Disinfected Other
27 1004742 (Sample C)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)					Grab <input checked="" type="checkbox"/> Composite Modified	Water 2 Soil 2 oz glass 8 oz glass Sludge Other:	1L amber Cubitainer Nalgene 1L VOA vial Encore Other: Other: bag	120 mL HNO ₃ NAOH HCL 500mL 250mL 4° C(None) Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 4° C(None) Disinfected Other
28 1004743 (Sample D)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, <u>< 4</u> Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)					Grab <input checked="" type="checkbox"/> Composite Modified	Water 1 Soil 2 oz glass 8 oz glass Sludge Other:	1L amber Cubitainer Nalgene 1L VOA vial Encore Other:	120 mL HNO ₃ NAOH HCL 500mL 250mL 4° C(None) Disinfected Other	H ₂ SO ₄ HNO ₃ NAOH HCL 4° C(None) Disinfected Other
Relinquished By: <u>Ken Hannon</u>				Received By: <u>Dick Bratzer</u>			Date: 4-13-10	Time: 1320			
Relinquished By:				Received By:			Date:	Time:			
Relinquished By:				Received By:			Date:	Time:			

Sample I.D. Letter	Site Description					LDPR Code:	Job Code:
Sample A	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)			FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>SU 37 Repl. 2</i>						
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>		Accuracy (check one)			Sample Reference ID: <i>214</i>	
Sample B	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)			FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>SU 37 Repl. 3</i>						
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>		Accuracy (check one)			Sample Reference ID: <i>214</i>	
Sample C	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)			FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>SU 161 Repl. 1</i>						
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>		Accuracy (check one)			Sample Reference ID: <i>221</i>	
Sample D	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: (Multiple)			FEPA8	NJ10 TSFF
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>SU 161 Repl. 2</i>						
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only): <i>X Easting</i> <i>Y Northing</i>		Accuracy (check one)			Sample Reference ID: <i>221</i>	
REMARKS: HWP: Michael Stroh <i>PERFORM MATRIX SPIKE ON 100472 FOR Cr⁺⁶</i> <i>PERFORM SRM SPIKE ON 100472 FOR Cr⁺⁶</i>							



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Page 1 of 2

8
B35

LABORATORY ORDER ID: 100413005

<p>Collector's Name: <u>Ken Hannon</u> (Please Print)</p> <p>Affiliation: <input checked="" type="checkbox"/> <u>ESP</u> <input type="checkbox"/> <u>KCRO</u> <input type="checkbox"/> <u>NERO</u> <input type="checkbox"/> <u>SERO</u> <input type="checkbox"/> <u>SLRO</u> <input type="checkbox"/> <u>SWRO</u> <input type="checkbox"/> <u>WPP</u> (circle one) <input type="checkbox"/> <u>DGLS</u> <input type="checkbox"/> <u>HWP</u> <input type="checkbox"/> <u>Other:</u></p>								<p>Description of Shipment</p> <p>Shipped-Carrier: _____ Tape sealed and initialed <input checked="" type="checkbox"/> Hand Delivered</p> <p>No. Of Containers: <u>2</u></p>			
Sample Number	Sample Collected	Analyses						Sample Type	For Lab Use Only		
29 1004744 (Sample A)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, <u>KH</u> Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)						Grab <input checked="" type="checkbox"/> Composite Modified Other:	Matrix Water Soil Organic Sludge Other:	Container 1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:	Preserved <u>H₂SO₄</u> <u>HNO₃</u> <u>NAOH</u> <u>HCL</u> <u>4° C(None)</u> <u>Disinfected</u> <u>Other</u>
30 1004745 (Sample B)	Date: 4-6-10	Hexavalent Chromium, TOC, pH, <u>KH</u> Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)						Grab <input checked="" type="checkbox"/> Composite Modified Other:	Matrix Water Soil Organic Sludge Other:	Container 1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:	Preserved <u>H₂SO₄</u> <u>HNO₃</u> <u>NAOH</u> <u>HCL</u> <u>4° C(None)</u> <u>Disinfected</u> <u>Other</u>
For Lab Use Only AB18539	Time: 1640	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Grab <input checked="" type="checkbox"/> Composite Modified Other:	Matrix Water Soil Organic Sludge Other:	Container 1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:	Preserved <u>H₂SO₄</u> <u>HNO₃</u> <u>NAOH</u> <u>HCL</u> <u>4° C(None)</u> <u>Disinfected</u> <u>Other</u>
For Lab Use Only AB18540	Time: /	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Grab <input checked="" type="checkbox"/> Composite Modified Other:	Matrix Water Soil Organic Sludge Other:	Container 1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:	Preserved <u>H₂SO₄</u> <u>HNO₃</u> <u>NAOH</u> <u>HCL</u> <u>4° C(None)</u> <u>Disinfected</u> <u>Other</u>
(Sample C)	Date: /	Hexavalent Chromium, TOC, pH, <u>KH</u> Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)						Grab <input checked="" type="checkbox"/> Composite Modified Other:	Matrix Water Soil Organic Sludge Other:	Container 1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:	Preserved <u>H₂SO₄</u> <u>HNO₃</u> <u>NAOH</u> <u>HCL</u> <u>4° C(None)</u> <u>Disinfected</u> <u>Other</u>
(Sample D)	Date: /	Hexavalent Chromium, TOC, pH, <u>KH</u> Percent Moisture, ORP, Total Metals (Fe, Mn, Mo, V, Al)						Grab <input checked="" type="checkbox"/> Composite Modified Other:	Matrix Water Soil Organic Sludge Other:	Container 1L amber Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:	Preserved <u>H₂SO₄</u> <u>HNO₃</u> <u>NAOH</u> <u>HCL</u> <u>4° C(None)</u> <u>Disinfected</u> <u>Other</u>
Relinquished By: <u>Ken Hannon</u>	Received By: <u>Dawn Hannon</u>		Date: 3-14-10	Time: 1320							
Relinquished By: _____	Received By: _____		Date: _____	Time: _____							
Relinquished By: _____	Received By: _____		Date: _____	Time: _____							

Sample I.D. Letter	Site Description						
Sample A	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields		County: (Multiple)		LDPR Code: FEPA8	Job Code: NJ10
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>SU 161 Rep 3</i>						
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):			Accuracy	(check one)	Sample Reference ID: <i>221</i>	
	X Easting	Y Northing			EPE (meters)		
					PDOP		
Sample B	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields		County: (Multiple)		LDPR Code: FEPA8	Job Code: NJ10
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>BLIND REPLICATE</i>						
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):			Accuracy	(check one)	Sample Reference ID:	
	X Easting	Y Northing			EPE (meters)		
					PDOP		
Sample C	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields		County: (Multiple)		LDPR Code: FEPA8	Job Code: NJ10
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.):						
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):			Accuracy	(check one)	Sample Reference ID:	
	X Easting	Y Northing			EPE (meters)		
					PDOP		
Sample D	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields		County: (Multiple)		LDPR Code: FEPA8	Job Code: NJ10
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.):						
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):			Accuracy	(check one)	Sample Reference ID:	
	X Easting	Y Northing			EPE (meters)		
					PDOP		
REMARKS: HWP: Michael Stroh							

APPENDIX C

Field Notes and Photo Log

Tannery Sludge Farm Fields Site
Andrew, Buchanan, Clinton and DeKalb Counties, MO

102

Location washington Co. Date 4-15-09Project / Client WELD-Furnace Creek

back to Hwy 21 south to bridge
 over that gone stream. Photo 22
 GPS at 4.11° Big River! 23, 24
 There's MDC signs along here
 for Boat & Kay River access. No boat
 ramp, but canoe access + fishing
 River looks fishable + floatable here.
 photos 25
 @ Boat & Kay access

Returned to Jeff City 2014100

103

Location Date 4-6-10Project / Client Tannery Sludge Farm fields

Loc ID 201/301

12:15

Collected yard DUTs from 4
 yard SUs. 1/5 incr. per SU.
 photo 21 camera B5

1239 SU 14 ~ Selected as uniform
 upland pasture, well vegetated
 lots of cow flop s.

1250 SU 66 Selected as low
 swampy area very wet, but well
 vegetated.

1305 SU 11 Selected as mix of
 upland and low areas. also
 borders tree line, where

104 Location King Lake Conserv. Area Date 9-6-10
Project / Client Tannery Sludge Farm Fields

Loc. ID 251
SU: 144 soybean field uniform
14:35 upland photo #2 camera B5

14:48 SU: 221 fall grassland uniform, slight slope
bordered by tree line

1505 SU: 409½ - just N of SU 409 areas
gravel road. Grassland uniform
photo #4 camera B5

1518 SU: 387 - soybean field uniform
upland: rear gravel road.
photos 5+6 camera B5

Location _____ Date 9-6-10
Project / Client Tannery Sludge Farm fields

Loc ID 221
1624
1632 SU 162 QC replicates x 3
1640 uniform corn field
photos 7, 8, 9

Loc ID 353 Andrew Co.
BKgnd: Residences
17:35 3 sus. photos 10, 11

106 Location _____

Date 4-7-10

Project / Client Tannery Sludge Farm Fields

Loc ID 312.

0815 Residence collected DUS from
3 yard sus / 5 mcr. each.
~~split~~ collected repl. bag for
Matt sugar w/ Accutis.

Loc ID 214

0835 SU 37. Collected 6 replicate

IS 10 increments each.

0855 Came 3 to Matt w/ Accutis.
Collected

Pointed Matt with handcopy map
and list of analytical parameters.

Uniform pasture - lots of cow flops

Location _____

Date _____

107

Project / Client _____

SOIL SAMPLE LOG
TANNERY SLUDGE FARM FIELDS SITE

Parcel #	Loc. ID	Sample ID (SUGridcell #.#)	Date Collected	Time Collected	Collector's Name	Comments
1	354 301	YARD DUIS	4-6-10	1215	Ken H.	4sus
2	254 201	14	"	1239	"	pasture upland uniform
3	254 201	66	"	1250	"	Pasture low wet area
4	254 201	41	"	1305	"	Pasture incl. both upland + low
5	251	144	"	1435	"	Soybean Field upland
6	251	221	"	1448	"	Fallow grassland bordered by treeline
7	251	4387	"	151805	"	Soybean field uniform upland
8						Soybean field uniform ms
9	251	409 1/2	"	1448	"	Fallow grassland N. Slope
10	221	162 repl.1	"	1624	"	Cornfield uniform
11	221	162 repl.2	"	1632	"	"
12	221	162 repl.3	"	1640	"	"
13	353	YARD DUIS	"	1735	"	3sus
14	312	YARD DUIS	4-7-10	0815	"	3sus
15	214	37	"	0835	"	Repl. 1 uniform pasture
16	214	37	"	0845	"	Repl. 2 "
17	214	37	"	0855	"	Repl. 3 "
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

SOIL SAMPLE LOG
 TANNERY SLUDGE FARM FIELDS SITE

Parcel #	Loc. ID	Sample ID (SUgridcell #. #)	Date Collected	Time Collected	Collector's Name	Comments
1	6632 205	88A	4/6/10	1241	SC	pasture
2	6632 205	88B	"	1245	VW	pasture
3	6632 205	88C	"	1252	SC	pasture
4	6632 306	Y	"	1306	SC	yard
5	6632 305	Y	"	1316	SC	yard
6	18970 319	Y	"	1350	SC	yard - applied fertilizer one week ago
7	18971 320	Y	"	1407	SC	yard
8	4859 325	Y	"	1510	SC	yard
9	4859 326	Y	"	1516	VW	yard
10	253 56	"	1617	SC	straddles ridge formerly hay field	
11	253 87	"	1657	SC	highest ridge	"
12	253 63	"	1720	VW	South sloping hill along tree line	
13	353 Yard	"	1735	KH	background yard abandoned	
14	301 yard	4/7/10	941	SC	yard	house
15	201 South field	"	950	SC	pasture w/ brush - low lying	
16	201 North field	"	955	BS	collects runoff sloping su-	
17	201 east field	"	1015	BS	drainage ditch runs through su- all pasture scatter in field	
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

SOIL SAMPLE LOG
TANNERY SLUDGE FARM FIELDS SITE

Parcel #	Loc. ID	Sample ID (SUgridcell #.##)	Date Collected	Time Collected	Collector's Name	Comments
1	303	Yard	4-6-10	1227	Brad Swank	covercrop in pasture
2	304	Yard	"	1255	"	Yard
3	5F 204	51	"	1310	"	Pasture
4	313	Yard	"	1415	"	Yard
5	302	Yard	"		"	It was fertilized field until 7 or 8 yrs ago
6	302	Yard	4-6-10	1430	"	Yard
7	352	Yard	4-6-10	1520	"	Yard - Bkgrnd
8	252	10	4-6-10	1600	"	Pasture
9	252	90	4-6-10	1620	"	Pasture
10	252	05	4-6-10	1635	"	Corn Row Crop
11	505		4-7-10	1015	"	P
12	201	Unk	4-7-10	955	"	Pasture
13	201	202	4-7-10			on Val's sheet
14		202	4-7-10		See	
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						



Photograph 1
Tannery Sludge Farm Fields Site
Photo taken 4/6/10 by
Michael Stroh,
DEQ, HWP, SPF

Location ID 254. Background
Yard



Photograph 2
Tannery Sludge Farm Fields Site
Photo taken 4/6/10 by
Michael Stroh,
DEQ, HWP, SPF

Location ID 251, SU 144.
Background farm field. Evenly
sloped upland soybean field.



Photograph 3
Tannery Sludge Farm Fields Site
Photo taken 4/6/10 by
Michael Stroh,
DEQ, HWP, SPF

Location ID 251, SU221.
Background farm field. Evenly
sloped fallow field with slight
slope bordered by treeline.



Photograph 4

Tannery Sludge Farm Fields Site
Photo taken 4/6/10 by
Michael Stroh,
DEQ, HWP, SPF

Location ID 251, SU 409.5.
Background farm field. Just
north of SU 409 across gravel
road. Uniform looking pasture
with slight slope.



Photograph 5

Tannery Sludge Farm Fields Site
Photo taken 4/6/10 by
Michael Stroh,
DEQ, HWP, SPF

Location ID 251, SU 387.
Background farm field.
Soybean field, uniform upland
near gravel road.



Photograph 6

Tannery Sludge Farm Fields Site
Photo taken 4/6/10 by
Michael Stroh,
DEQ, HWP, SPF

Location ID 251, SU 387.
Background farm field.
Soybean field, uniform upland
near gravel road.



Photograph 7
Tannery Sludge Farm Fields Site
Photo taken 4/6/10 by
Michael Stroh,
DEQ, HWP, SPF

Location ID 221, SU 162.
Target farm field. Uniform corn
field with little topography.
Selected for triplicate SU QC
samples.



Photograph 8
Tannery Sludge Farm Fields Site
Photo taken 4/6/10 by
Michael Stroh,
DEQ, HWP, SPF

Location ID 221, SU 162.
Target farm field. Uniform corn
field with little topography.
Selected for triplicate SU QC
samples.



Photograph 9
Tannery Sludge Farm Fields Site
Photo taken 4/6/10 by
Michael Stroh,
DEQ, HWP, SPF

Location ID 353.
Background residence Andrew
County.



Photograph 10

Tannery Sludge Farm Fields Site

Photo taken 4/6/10 by

Michael Stroh,
DEQ, HWP, SPF

Location ID 353.

Background residence Andrew
County.